

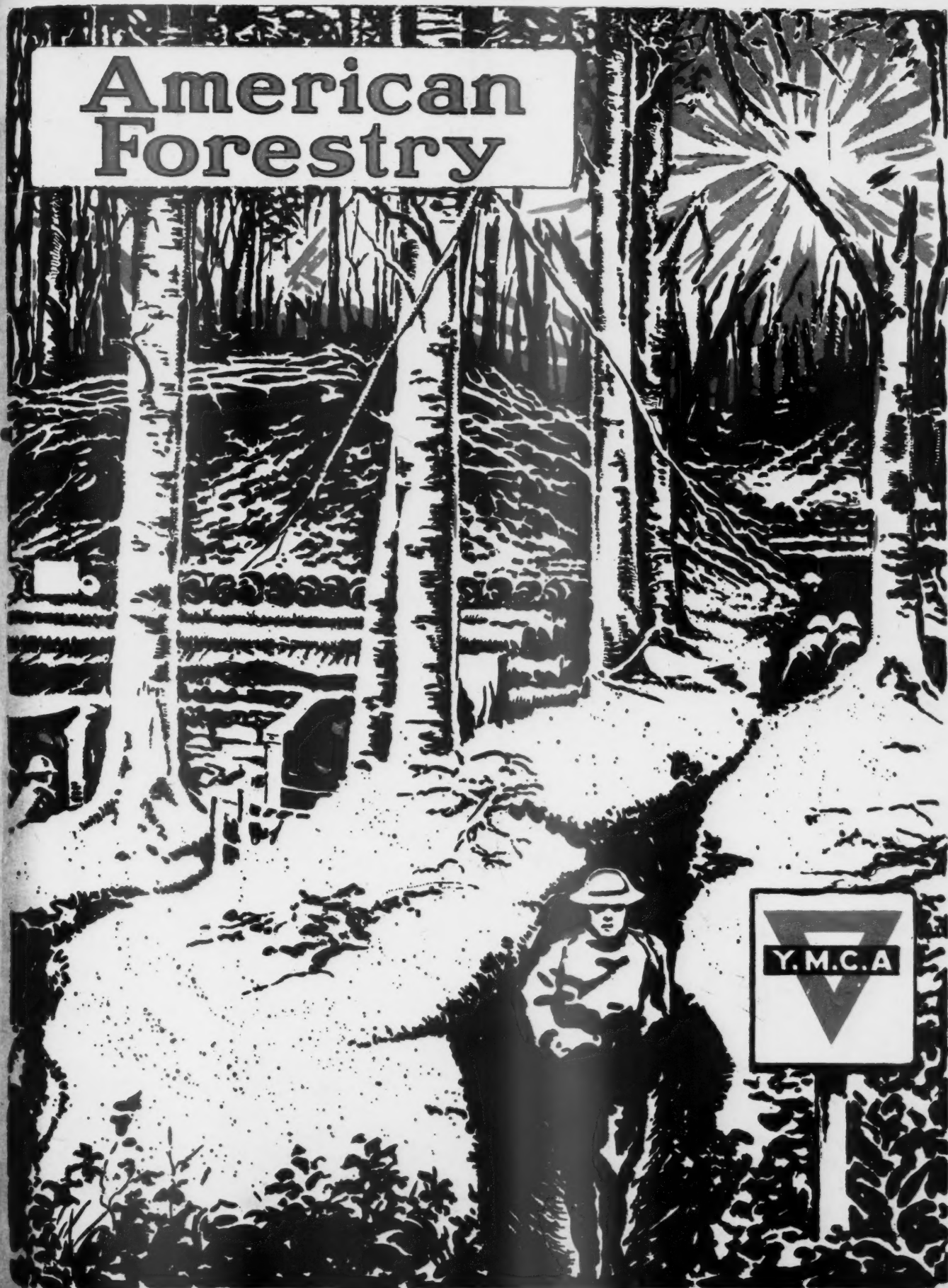
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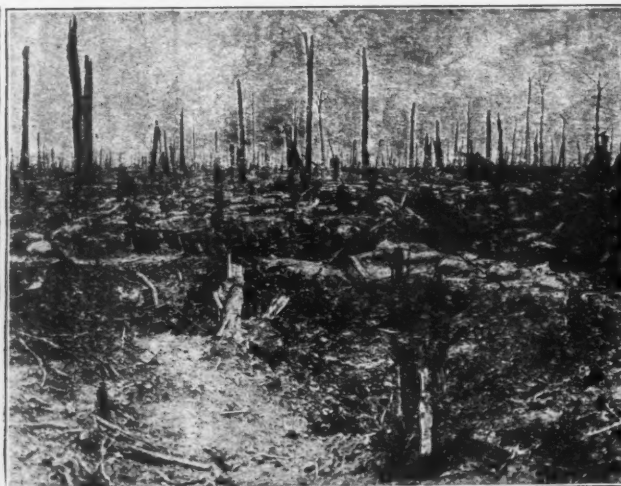
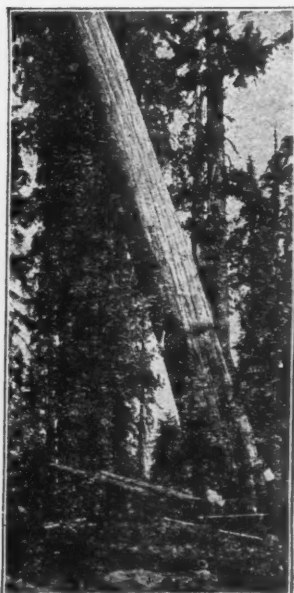
VOLUME 24

OCTOBER, 1918

NUMBER 298

American Forestry





Central picture: British Official Photograph, showing destruction of timber at "Great Battle of Messines Ridge." To left: "Logging in the great California forests" (copyrighted by Underwood & Underwood). To right: "Speeding up the great lumber industry in the Northwest to meet war demands" (copyrighted by U. & U.)

"Conservation Imperative"

The Waste "Over There" must be replaced by the Plenty "Over Here"

Never before has the word Conservation held the meaning that it does at present, nor has the importance thereof been impressed upon us as fully as by the gigantic scale of the destruction wrought in Europe.

Our timber resources are still immense. Waste in the utilization of forest products has been, perhaps, the inevitable result of plenty, but today wastefulness in any form is reprehensible.

In the period of reconstruction more structural wood than ever will be required, great as the war demands are, and therefore every stick should be conserved.

Decay of structural wood is one form of wastefulness which it is equally necessary to reduce to the minimum. Every class of consumers can accomplish this by the application of preservative treatments with Carbosota Creosote Oil.

Wood Preservation is Conservation of timber and labor, and an important economy—one that will pay large dividends for years to come.



Carbosota Creosote Oil is the most efficient wood preservative for non-pressure treatments. It conforms strictly to the standard specifications adopted by the U. S. Shipping Board Emergency Fleet Corporation, and by the U. S. Railroad Administration.

Technical assistance to help in selecting the proper method of treatment may be obtained gratis by addressing nearest office.

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AMERICAN FORESTRY

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

PERCIVAL SHELDON RIDSDALE, Editor

OCTOBER 1918 VOL. 24

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ITALIAN OBSERVATORY CLEVERLY SITUATED UP A TREE

This observatory has been cleverly selected by the Italians as a most suitable place for watching the Austrians. Acting under the camouflage screen afforded by the giant trees, the Italians have placed a ladder that reaches to the very tree tops and from here they are able to keep a close watch on enemy movements.



WOOD WHICH WILL FLY OVER THE HUNS

This "cord wood" is the finest of black walnut, the best wood known, from which to make airplane propellers and gun stocks. The forests of the United States are being scoured for this material. It is impossible to secure too much, as thousands of airplanes and millions of gun stocks are needed. Americans who own walnut are asked to fight with their trees.

AMERICAN FORESTRY

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WALNUT IN THE WAR

THE government needs now and will continue to need as long as the war lasts all the walnut it can secure; and yet the government will not buy any of this lumber. This sounds paradoxical. It does not mean that Uncle Sam has turned beggar and that he is asking the people of the country to give him their walnut trees. No, it merely means that those patriotic owners of such trees who desire to see them converted into airplane propellers and gun stocks must deal in making their sales with one or more of the saw mills which have government contracts for this material. The government cannot buy either the logs or the trees, as part of the lumber produced by the log is not suitable either for airplane or gun stock making.

"Fight with your walnut!" This is the message which is being conveyed through various channels to everybody in the United States possessing any of this valuable wood which can be utilized for the purposes desired. Boy Scouts, at the request of President Wilson, and the American Red Cross have been among the agencies which are assisting in locating and in persuading the owners to part with their walnut trees.

American walnut is the finest wood that has been discovered both for airplane propellers and for gun stocks. That is the reason why the United States government is anxious to secure as much of it as can be obtained. The supply is not as plentiful as that of many other woods. While there is still a considerable amount of walnut standing in this country, it is not as abundant as might be wished at this particular period in the world's history. Even if

there were more than the United States could use in its war preparations, the Allies are calling for more and would quickly use up any surplus supply of this valuable timber.

Turn your trees loose and put them into the air or the front line trenches to help the American fliers and the American soldiers in their advance for democracy!

In making this appeal the Bureau of Aircraft Production points out that a half dozen walnut trees will provide lumber to build a propeller blade and put a gun stock into the hands of each man in a platoon; and then adds:

"Picture your own son or the son of your neighbor holding on and fighting against desperate odds until the company or regiment your trees have armed can come to his relief. Make this relief possible! Turn your trees loose! Wake up and get into the fight! In this way you will be fighting for and with him as truly as if you stood beside him in battle."

It is interesting to note that the old plea, "Woodman, Spare that tree!" has been of value in this connection. It has preserved many a fine specimen of walnut which now will be able to serve the nation in its time of vital need. "In youth it sheltered me," the appeal to the woodman added: and that same tree now transformed into the swift-revolving propeller of

a speeding air-fighter or into the smooth-polished stock of a gun, will continue to shelter and protect the homes and the lives of democracy the world over.

Sentiment was often the motive which saved some of these finest trees from the blows of the axeman. But



GETTING READY TO FLY

Thousands of feet above the fair plains of France and probably over the Rhine in the propeller of an American airplane this walnut log and its fellows will see service in helping to vanquish the German hordes. A lot of gun stocks also will come out of this pile.

no sentiment today should keep any patriotic American from giving up material which is so urgently and vitally needed in the fight. Whoever has any walnut trees should get in touch at once with any one of a number of lumber companies or manufacturers who have contracts with the government to supply airplane propellers or gun stock material. A list of these is given at the end of this article.

Walnut possesses qualities which make it better fitted than any other known wood both for the propellers of airplanes and for gun stocks. Its strength and lightness combined; and the fact that it does not warp or splinter have placed it in the front rank of forest products for the uses named. These are all important characteristics when it comes to the manufacture of equipment that must stand the hardest tests and the most gruelling stress of war. With the severe strain to which an airplane propeller is subjected every second of the time it is in active operation, it is essential to the life of the machine and of the flier, as well as to the success of his hazardous tasks that nothing should "give." The slightest warp at a critical moment might work untold and irreparable damage. It might result in the needless loss of hundreds or thousands of lives, or in the turn of a battle.

What is true of an airplane propeller is true also of the trusty gunstock which the soldier polishes carefully and gently and upon which he depends when he goes "over the top" after the enemy. If it fails him it may cost not only his life but that of some of his fellow fighters. In order to do accurate and deadly work the barrel of the gun must be perfectly true. The least warp of the gun stock is very likely to turn the barrel slightly so that it will not fire straight. Surely no one could wish a finer mission for some of the noble old walnuts which have stood for seventy-five or a hundred years, than to see

them start for France to help in the drive into Germany.

And like the men that this country is sending abroad, no weaklings are wanted. Walnut trees to be available for either of the uses desired, must be at least twelve inches in diameter at the smaller end; and from logs which are under fourteen inches nothing but gun stock is made. They are too small for airplane making. The trees which will be acceptable for government needs will be from sixty-five to one hundred and fifty years of age, while a few may even exceed the latter age.

The walnut belt of the United States extends roughly from the western end of New England on out into Nebraska, and on the north from a short distance up into the Lake States down into Tennessee. Some scattered walnut

is found in other places, but probably not in sufficient quantities to make up car-load lots which would warrant the cutting and shipping of the timber to the manufacturer.

While the government does not buy any of the lumber direct, it has prepared a scale of prices in order that those who have the wood to sell may know what is a reasonable price for them to secure. Buyers for the various sawmills and lumber companies will pay to owners prices in accordance with the government



UP THE ROAD TOWARD VICTORY

These walnut logs going into a saw mill "somewhere in America" are on their way to the battle front "somewhere in France." Part of them will serve the cavalry of the air in the form of airplane propellers. Some will go into gun stocks. Millions of feet are needed for these two purposes. United States foresters and Boy Scouts are helping the Government to locate walnut.

scale. It should be understood that these are not prices fixed by the government but that they allow only a fair and reasonable profit to both the mills and the log buyer. These prices are as follows:

Prices of Black Walnut Logs 8 feet and over long on board cars on railroad

Diameter	Minimum	Maximum
12"-14"	\$45. per M.	\$55. per M.
15"-16"	55. "	65. "
17"-18"	65. "	75. "
19"-20"	75. "	85. "
21"-22"	85. "	95. "
23"-24"	95. "	105. "
25"-26"	105. "	115. "
27"-28"	115. "	125. "
29"-30"	125. "	135. "
31" and up	135. "	150. "

Equivalent Value for Standing Timber

Minimum	Maximum
\$20. per M.	\$35. per M.
30. "	45. "
40. "	50. "
50. "	60. "
60. "	70. "
70. "	80. "
80. "	90. "
90. "	100. "
100. "	110. "
110. "	120. "

No logs of less than the dimensions mentioned should be cut as they are too small to pay either the owner or the saw mill and they do not produce governmental material. Where possible logs should be cut ten feet and up in length, as the longer logs produce more material suitable for the government's needs.

There must be no "slackers" among the trees any more than among civilians. Every one that can be drafted into the service must be numbered and called to arms. It is the duty of every patriotic citizen to see that there is no evasion. The



LOGS LIKE THIS ARE SCARCE

The figure 1452, chalked on the side of this six foot walnut log, does not indicate the year in which the tree began to grow, although it was about 150 years old. It has been saved for America to help fight in the present war. In spite of its monstrous weight it will rise like a bird and, transformed into an airplane propeller, soar thousands of feet above the earth.

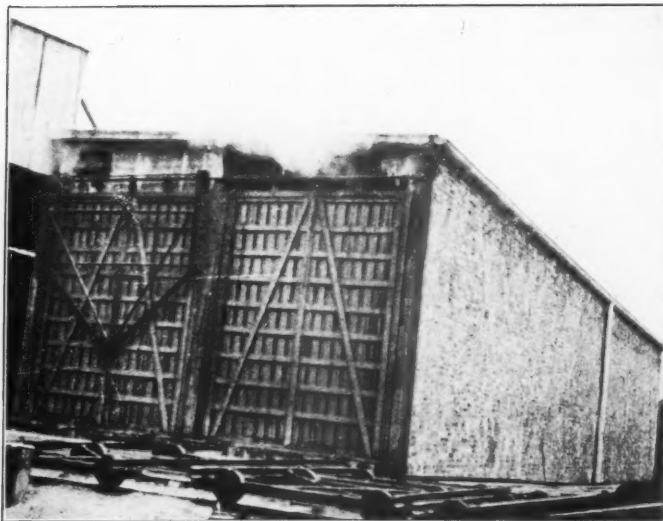
work that the Boy Scouts have been doing in spotting walnut trees all over the United States is proving very helpful and has won for them hearty commendation. As the boys discover the trees they notify their scout master who in turn prepares a report which is forwarded to the proper officials. The army officers who are handling

this end of the work testify to the assistance which is being rendered them in this way. The Boy Scouts are taking great pride in this patriotic service and have entered into it with the same spirit they displayed in selling



HOW NEBRASKA IS HELPING

Most people do not think of the state by the Platte as having any woodland, and yet it is turning out some of the walnut for which the Government is now eagerly searching all over the country. A belt from Massachusetts to Nebraska and from the Great Lakes to Tennessee virtually covers all the walnut territory of the United States.



GETTING THE STEAM UP

In this kiln 17,000 gun stock blanks are being made ready for service. Five days is about the time required to prepare them. The walnut timber which goes into airplane propellers is steamed in a similar way before the turning of it into its finished shape is begun. At some points whole batteries of kilns are at work, hissing out the smoke of battle thousands of miles from the firing line.

Liberty Bonds and War Savings Stamps and in planting war gardens. As a result of the President's personal appeal to them they feel that they are the trusted messengers of the commander-in-chief of the American army and navy. In some places the boys attach tags to the tree located, giving the name of the scout and his troop number, and adding that this marking was done "at the request of the President of the United States." With reports still coming in, there have been located in this manner about 4,000 carloads of lumber.

Valuable aid is being given by the American Red Cross which has sent requests to its chapters and branches in various parts of the country to direct the attention of the members to the need for walnut. This help is referred to as "an opportunity to demonstrate their patriotism in a most practical and effective way."

"Owners of walnut trees can probably find out in your community," says the Red Cross statement, "which saw-mills have government contracts, but if this information is not available, please write, giving the number of trees and their location, to the Ordnance Department, Procurement Division, Small Arms Section, Washington, D. C."

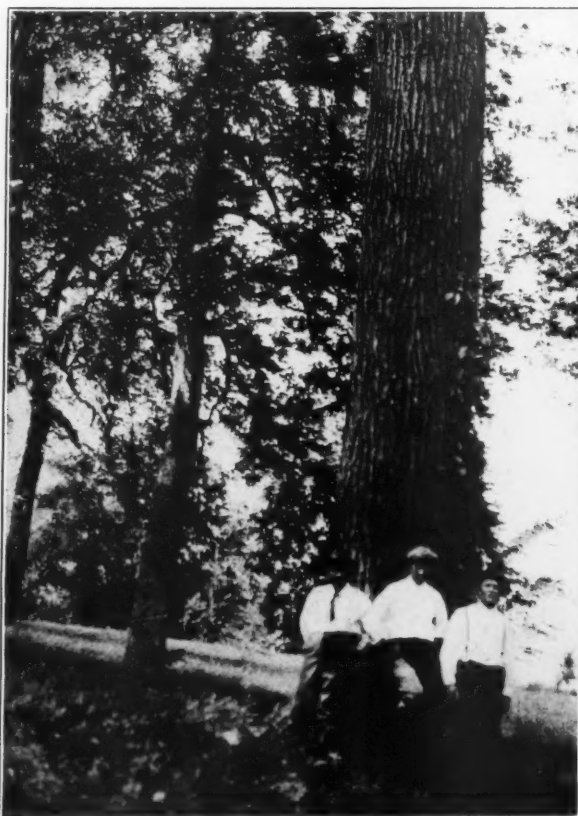
One Red Cross member who desired to donate some trees to the government was informed that this could not be done but that the same result could be accomplished if the trees were given to the Red Cross chapter or the national organization which could sell them and use the money thus obtained to aid in the great philanthropic and life-saving work of that society.

Offers of all sorts have been received. People have written in to inform the war department that they had an organ, a walnut bedstead, some furniture, a few boards in the attic or other small pieces of this wood. Of course, the patriotic spirit back of these desires to help is greatly appreciated, even when the material is not available for

use. Unless as much as a carload lot at least could be assembled in the same neighborhood, it would not be practicable to utilize the lumber.

Representatives of the United States Forest Service and county agents of the Department of Agriculture, in addition to their own field men, are working with the Bureau of Aircraft Production and the Ordnance Department in locating walnut and in getting the owners in touch with the buyers. There is complete co-operation between these two branches, and after that part of the lumber has been taken which is most suitable for one purpose, the balance is applied to the other. Ordinarily when a large tree contains material for both airplane and gun stock use, about fifteen per cent goes into the former and seventy-five per cent into the latter, the remaining ten per cent being sold for small furniture manufacture or some similar purpose. Trees which are large enough for government use as a rule would be fifty inches and up in circumference at a point breast high.

Three giant black walnuts which had stood in the graveyard of a Presbyterian Church in a little Maryland town for almost two hundred years, have



"DRAFTED FOR SERVICE"

This fine old walnut tree has been selected to serve the country whose soil nourished it. There will be no cry of "Woodman, spare that tree," when the ax is laid to the root, for it has been called into the service of the Government. It will soon be on its way to the airplane and gun stock factory.

recently bowed their leafy heads to the needs of their country. For twenty years the women of the congregation had opposed all attempts to have the trees removed. Twenty years ago the trustees of the church decided to sell the trees. The women protested. While efforts were being made to come to a decision, some stranger offered the trustees a sum equal to the value of the forest giants provided they were allowed to stand until the timber was actually needed. No one today knows the

name of the man who proved to be such a benefactor to America and saved the walnut mammoths until this hour of need. Get your walnut trees into the fight!



OFF TO THE GUN FACTORY

This load of gun stock "fitch" is going to help the boys in France bring home the "bacon." These walnut boards are ready to be cut up into the rough forms which then quickly will be shaped and polished into fine handles and settings for gun barrels.

Your country needs them! That is the message which whirrs from the propeller of every American or Allied airplane as it starts after a flock of Boche fliers who may be on their way to bomb a hospital. That is the message whizzed from every bullet that speeds from an American gun to help crush militarism and bring justice and righteousness to the war-ridden world. No one surely can fail to heed the call.

Herewith is a list furnished by the Bureau of Aircraft Production and the Ordnance Department, giving buyers of walnut for airplane and gun stock material:



WIN WITH WALNUT!

The American flier and the American fighter are counting on those back home to turn out many great piles of walnut like this to furnish the whirling propellers which will send them forward over the enemy's lines and the gun stocks in whose strength they trust.

WALNUT MANUFACTURERS WITH GOVERNMENT CONTRACTS

NAME	ADDRESS
Amos Lumber Company, Edinburg, Indiana.	
Central Timber & Express Company, 115 Broadway, New York.	
The Cherry Lumber Company, Cincinnati, Ohio.	
Cincinnati Walnut Company, Cincinnati, Ohio.	
Des Moines Sawmill Company, Des Moines, Iowa.	
Farris Hardwood Lumber Company, Nashville, Tennessee.	
T. A. Foley, Paris, Illinois.	
Geo. W. Hartzell, Piqua, Ohio.	
Hoffman Brothers Company, Fort Wayne, Indiana.	
Hoosier Veneer Company, Indianapolis, Indiana.	
Kosse, Shoe & Schleyer, Cincinnati, Ohio.	
Long-Knight Lumber Company, Indianapolis, Indiana.	
Penrod Walnut & Veneer Company, Kansas City Missouri.	
Pickerel Walnut Company, St. Louis, Missouri.	
J. B. Ransom Company, Nashville, Tennessee.	
Sander & Egbert, Goshen, Indiana.	
J. V. Stimson & Company, Owensboro, Kentucky.	
Wood Mosaic Company, New Albany, Indiana.	
I. T. Williams & Sons, 11th Avenue Corner 225th Street, New York.	
Williamson Veneer Company, Baltimore, Maryland.	
The Martin Barris Company, Cleveland, Ohio.	
Bear Brothers, Madison, Indiana.	
Burns & Knapp Lumber Company, Conneautville, Pennsylvania.	
Ideal Veneer Lumber Company, Franklin, Indiana.	
T. F. Jennings, Marianna, Florida.	
Keystone Manufacturing Company, Elkins, West Virginia.	
Louisville Point Lumber Company, Louisville, Kentucky.	

NAME	ADDRESS
L. J. Meeks, Muncie, Indiana.	
The Ohio Veneer Company, Cincinnati, Ohio.	
Eisman & Richer Lumber Company, Peru, Indiana.	
N. C. Stansberry, 529 Liberty Street, Jackson, Tennessee.	
Coffman Manufacturing Company, Washington C. H., Ohio.	
Fourman Brothers, Arcanum, Ohio.	
Geo. H. Amick, Clendenin, West Virginia.	
C. H. Barnaby, Green Castle, Indiana.	
Langton Lumber Company, Pekin, Illinois.	
W. H. Robinson Real Estate Trust Building, Philadelphia, Pennsylvania.	
W. S. Ranson, Shelbyville, Tennessee.	
Pennsylvania Furniture Company, York, Pennsylvania.	
The Steel Alderfer Company, Cuyahoga Falls, Ohio.	
W. J. McIntosh, Monticello, Illinois.	
C. L. Willey Company, Chicago, Illinois.	
Brown & Harris Lumber Company, Holmesville, Ohio.	
Freiberg Lumber Company, Cincinnati, Ohio.	
Imperial Lumber Company, Columbus, Ohio.	
Nickery Brothers Company, Memphis, Tennessee.	
C. C. Shafer Lumber Company, South Bend, Indiana.	
Talge Mahogany Company, Indianapolis, Indiana.	
Batesville Walnut & Veneer Company, Laurenceburg, Indiana.	
Breece Veneer Company, Kenova, West Virginia.	
Maley & Wertz, Evansville, Indiana.	
Astoria Veneer Mills & Dock Company, Astoria, Long Island.	
J. W. Willis, Washington, C. H., Ohio.	

WALNUT GUNSTOCK MANUFACTURERS WITH AIRPLANE LUMBER CONTRACTS ALSO

NAME	ADDRESS
Pickerel Walnut Company, St. Louis, Missouri.	
Penrod Walnut & Veneer Company, Kansas City, Missouri.	
Frank Purcell, Kansas City, Missouri.	
Wood-Mosaic Company, New Albany, Indiana.	
Langton Lumber Company, Pekin, Illinois.	
Illinois Walnut Company, East St. Louis, Illinois.	
Hoosier Veneer Company, Indianapolis, Indiana.	
Des Moines Sawmill Company, Des Moines, Iowa.	
John B. Ransom, Nashville, Tennessee.	
Geo. W. Hartzell, Piqua, Ohio.	

NAME	ADDRESS
Kosse, Shoe & Schleyer, Cincinnati, Ohio.	
Long-Knight Lumber Company, Indianapolis, Indiana.	
Chillicothe Gunstock Manufacturing Company, Chillicothe, Missouri.	
Steele Alderfer Company, Cuyahoga Falls, Ohio.	
L. J. Meeks, Muncie, Indiana.	
Breece Veneer Company, Kenova, West Virginia.	
Central Timber Export Company, New York, New York.	
Cherry Lumber Company, Cincinnati, Ohio.	
Pennsylvania Furniture Company, York, Pennsylvania.	



Courtesy of American Museum of Natural History

A MOST EXPENSIVE CLOAK

THIS FEATHER CAPE, NOW ON EXHIBITION IN THE MUSEUM OF NATURAL HISTORY, NEW YORK CITY, LOOKS VERY COMMON IN A PICTURE. TO DO IT JUSTICE AT ALL IT SHOULD BE REPRODUCED IN ITS NATURAL COLORS, IF THAT WERE POSSIBLE. IT WAS FORMERLY THE PROPERTY OF A HAWAIIAN PRINCESS. IT IS MADE FROM THE SMALL TIPS OF THE FEATHERS OF THOUSANDS OF TROPICAL BIRDS, AND REQUIRED MANY YEARS WORK BEFORE IT WAS COMPLETED. THERE ARE OTHER CAPES OF THIS KIND, BUT THIS ONE, WHILE NOT SO LARGE, IS MORE BEAUTIFUL AND VALUABLE THAN THE OTHERS. THE VARIOUS COLORED FEATHER TIPS HAVE BEEN MARVELOUSLY BLENDED IN THE CONSTRUCTION OF THIS UNIQUE CAPE, WHICH IS VALUED AT TEN THOUSAND DOLLARS.

A GOOD WINTER SPORT

BY JAMES C. GRAHAM

THERE comes a time in the lives of the most of us when the perfect symmetry of the sphere, whether in the guise of the base ball, the tennis ball, or the golf ball, no longer has its all-compelling powers of seduction. And yet we still need exercise. We need it, not only for the physiological benefits which we derive from it, but also for the joy which it brings to us, irrespective of any other benefit received. But how are we to get it?

The war gardens have, for the present at least, furnished an answer to which many of us have given ear. But even in the Garden of Eden, the tilling of the soil was but a temporary occupation; and in the most of our many states the time of gardening is limited to the few months when the desire for exercise is the least imperative, and the chances for the gratification of that desire are the most frequent. The question which confronts the man of the sedentary life is,—“What can I do in the winter?”

Some of the teachers at Phillips Academy, Andover, Massachusetts, have found an answer to the question which is more than an answer. It not only furnishes the needed exercise, but it provides as well an object and a result of the exercise. Briefly, the answer is “Chop Wood.” But it is more than that. It is to chop wood in such a way that you not only get your exercise and the wood, but provide for more and better wood in the years to come.

The game is this: On the estate of the Academy, two or three hundred acres, there is quite a number of acres of woodland. As in the case of all woods which have received no special care, many of the trees are dead and dying, and many more growing in such a way that good trees are being injured by too close crowding and by less valuable ones in their immediate vicinity. The first thing done was to go carefully over the growth and “spot” those trees which were to be removed later. This was done in the fall, when it was easier to tell the dying from the healthier ones. Then as the winter months passed by, those of the teachers who wished to would go out from time to time and chop them down and cord them up. Later they would saw and split them into lengths suitable for burning in the fire-places. Now Andover is fortunate in that practically all the houses are provided with open fire-places, so that there was a constant demand for all, and more than all, the wood which could be so provided. The result was that the wood sold for a good market price and the proceeds during a season would amount to from fifty to one hundred dollars. And now comes the part of the scheme which gave it interest. All moneys received from the sale of the wood were used in buying young trees and setting them out in deserted pastures and uncultivated land belonging to the school, so that during the past

three or four years more than fifteen thousand (15,000) trees have been set out in this way. They were mostly three-year-old white pine; but in places where the effect of the trees upon the landscape was important, some spruce, hemlock and fir were also planted, so as to give a little variety to the winter green. In one plot a planting of red pine was made and it was found that red pine and white spruce gave the most satisfactory results.

Now this is a winter game which a good many of us can play. It is not necessary that you own the land upon which you work and which you plant. Almost anywhere you can find the woods and the fields necessary for the game. If you or your friends do own the land, so much the better. But if you do not, you can arrange it so that your exercise costs you nothing and when you are through you have made many more than two trees grow where one tree died before. If you live in the city, the case may be more difficult. But even for those who are so unfortunate, there is usually some chance to get away for week-ends and occasional afternoons. If you work alone, all that you need is a good ax, a one-man cross-cut saw, a buck saw and a saw buck. If others work with you, a larger cross-cut and a sledge with wedges are often helpful. But one word of advice: Do not buy your axes and saws at the nearest hardware store; but get them from some concern which is in the habit of selling to the men who use these things in the “big woods.”

In regard to the planting of the young trees: In many states young trees will be furnished gratis to those who are doing the work of reforestation; but the people of Andover found it more satisfactory to purchase the stock of some reliable forestry company. Two, three, and four-year-old transplants were all tried, with the result it did not seem to make very much difference which were used, though a system was finally adopted by which the older trees were used for small plantings and the younger ones where several acres of land were to be filled in. The planting was done in some cases by the teachers and in others by the people from whom the trees were purchased. It depended upon the time of planting. As a general rule April seemed to be about the best month; but at that time many of the teachers were busy in their war gardens. As the forestry companies will furnish and plant the trees for from one to two cents apiece, depending upon the age of the trees and the number ordered, it was fully as convenient to let them do the planting when there was other out-door work to furnish productive employment for the teachers. But for those who had no gardens, the planting itself was plenty of exercise.

Note. There will be more work accomplished and less friction developed if you have a “boss.”

EXPERIENCE OF A FORESTRY ENGINEER OFFICER IN FRANCE

BY MAJOR FRANK R. BARNES

COMMANDING NINTH BATTALION, TWENTIETH ENGINEERS (FOREST)

OUR arrival at the mountain village which was to be headquarters had been anticipated by an advance officer from the adjoining district so that despite rain, snow and separation enroute from our tentage, ranges and rations, we were able, through his practiced direction to secure billets, food and a large English truck, which though clumsy and worn, was a veritable lifesaver during the first few days.

Our troops, through the kindness of a local manufacturer, were soon quartered comfortably in a factory

units scratch for themselves, like a wise old hen with its chickens—except on actual essentials—and the supply officers were the busy little persons while learning from where and from whom the various supplies and equipment should come.

When finally the special forestry equipment and the pioneer Engineer equipment, packed and boxed by us with so much care over there (in America) arrived, we were all most heartily glad. The distinctive green stripe around the boxes and crates—originated by our Hibernian Supply Officer, had a homelike and intensely satisfying look, and the axes, saws, cant hooks and other woodstools were greeted with cheers; likewise the rubber boots, gloves, tarpaulins and other

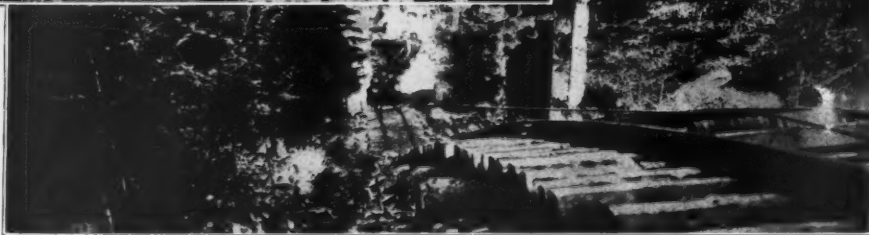


building, which luckily contained several stoves, running water and beds.

Some used tents arrived in a couple of days, and the troops moved to their site in the mountains; but the entire tentage caved in about ten o'clock one night under the weight of an especially heavy snow fall. The men then took possession of a large barn close by and slept in the hay until the arrival of new tents a little later.

For six weeks we had daily rain or snow storms with hail and sleet thrown in for good measure. Mud—ankle, and in places knee, deep.

However, the sun finally appeared from out of the mists, dried our tents and the ground and put better heart into our rain-soaked woodsmen, who had worked continuously under the conditions mentioned. Our Headquarters had adopted the plan of letting the new Forestry



THE STEEP, INCLINED ROAD

This shows a section of the track built up one of the mountain sides in France. The logging is done at top of the mountain and the load is sent down a 72-degree drop, to the bottom for milling.

woods necessities provided through the experienced foresight of our organization purchasing officer in the U. S. A.

The trees came down, our horses, harness and log wagons arrived, and gradually organization and operation began to take shape. As weeks passed the piles of cordwood, ties and other hewn material grew; logs were banked around the mill site and logging trails.

Soon the mill machinery began to arrive, was placed, the mill frame went up and our saw sang its way through the first log and cut some good one and two



Underwood and Underwood—British Official Photograph

THIS IS A TYPICAL SCENE IN NORTHERN FRANCE TODAY

Beaumont Hamel, where the brutal mark of war is indelibly placed. Before the attack these hills were covered with beautiful trees and sheltered many peaceful homes.

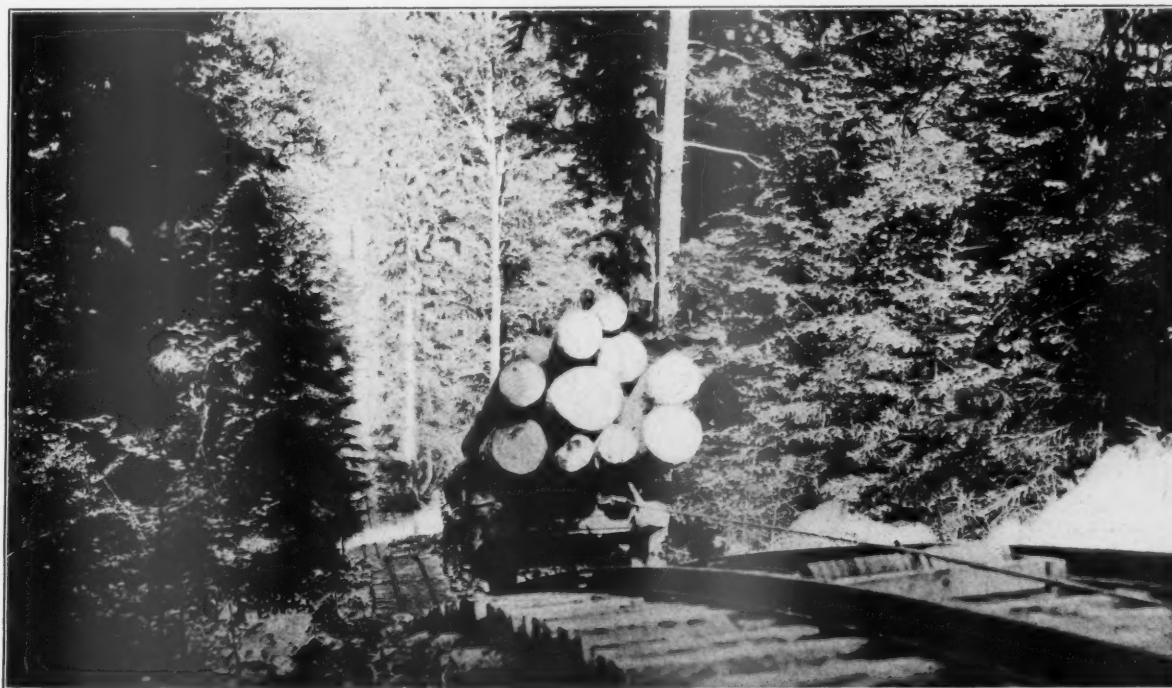
inch lumber which will do its bit toward taking the "I" out of Kaiser.

We have a fine, rugged lot of young Americans, toughened by three months of out of door work in the keen mountain air, and directed by officers trained through years of experience in the various branches of lumbering.

Our first Independence Day abroad was celebrated in true American style and our French neighbors closed their offices and stores and came en masse to look on with

keen interest as the intricacies of base ball and *la boxe* were explained to them in American French.

The importance of our work is realized by all officers and men. They feel that every stick of firewood, every tie, every piece of lumber furnished, may accomplish as much for the common cause as the bullets and shells, and therefore shall use every endeavor to shoot the stuff out of their operations relatively as fast as our boys at the front are handing Boches their pills from American machine guns.



A LOAD OF LOGS ON THE INCLINED ROAD

They are just about to start on the shoot to the bottom. The cable control is perfect. Engine compression is used as brake and it takes just seven minutes to make the descent from the top of the mountain. Note the dense and beautiful forests—in strong contrast to the utter desolation pictured above.



Underwood and Underwood—British Official Photograph



Committee on Public Information

PHOTOGRAPHS PICTURING THE USE OF WOOD

The first picture shows British Tommies in the front area heaving down shell scattered trees for firewood. This gives a good idea of the utter desolation left in the path of battle. And the lower picture shows the transportation of food on a narrow gauge road in a mule-hauled car to the trenches, under cover of dense woods in France.



Committee on Public Information



Committee on Public Information

AND THE WOODS IN THE WAR

The upper picture was taken at a spot very near the front lines in France, and gives a splendid idea of the construction of a first-class shell shelter, doubly protected by the woods in front. In the lower picture are shown typical dug-outs, this one being that of a post commander. He is receiving a message for artillery barrage. Note the walk made of wooden trench-mats, or "duck boards."

MEXICAN FORESTS AFFORD MANY VALUABLE WOODS

R EPORTING on commercial woods of the Mazatlan district of Mexico, Frank C. Jordan, clerk in the American consulate there, writes in part as follows:

"Following is a list of twelve woods which are available in sufficiently large quantities for commercial purposes, though the question of getting them to the market is a serious one:

"Palo Prieto.—Found over all the southwestern part of Mexico, is quite common in Sinaloa, but does not here reach the enormous size of the trees in the extreme southern part of the republic. Both sap and heart wood are highly resistant to rot, and it is considered one of the best woods of Mexico.

"Ebano (ebony).—Found all along the coast of Mexico, grows to a large size in Sinaloa, but the logs are not very straight. Logs of more than twelve inches in diameter with perfectly sound hearts are very rare. The excellent qualities of this wood when cut from live, sound trees are known all over the world.

"Amapa Negra, or Amapa Verde.—Found all over Mexico. In the state of Sinaloa the trees are rather small in size, although plentiful. It is a very much better wood than the Amapa Blanca, and is employed rather extensively in shipbuilding.

"Tepemezquite, or Meuto.—Found all over the southwestern part of Mexico and is especially plentiful in the states of Sinaloa and Nayarit (Tepic). Used extensively in shipbuilding, especially where heavy compressive stresses are encountered. Its worst characteristic is a tendency to check badly when exposed to the sun, the ends frequently opening up for a distance of two or three feet and curling back on the log.

"Truchas or Trucha.—Found all over the Pacific coast of Mexico. Grows well in Sinaloa, especially in the southern part. This wood is used in shipbuilding wherever heavy tensile stresses are encountered.

"Palo Amargo or Cedro Blanco (Mexican white cedar).—Found all over the northwestern part of Mexico. Grows to a fair size only and is not very straight. The Mexicans consider this wood to be superior to the best Douglas fir or yellow pine. It is used very successfully in naval construction where a light wood of the approximate strength and resisting qualities of Douglas fir is required.

"Palo Margarita or Baritillo.—Very often confused with the Palo Fierro (ironwood). Found all over the southwestern part of Mexico and quite common in Sinaloa. Considered one of the very hardest of the hardwoods and used very extensively in shipbuilding, especially where heavy compressive stresses occur.

"Haba.—Very plentiful in the coast country of Sinaloa and Nayarit. Grows to a large size, fairly straight, and is seldom hollow. Considered by Mexican shipbuilders to be the best native wood for naval construction. It is rather difficult to handle when green, as the sap burns the skin upon contact and is very plentiful just under the bark of the tree.

"Guayacan (*lignum-vitae*).—Very plentiful on the west coast of Mexico from the state of Sonora to Oaxaca. Grows to greater size and degree of hardness in southern Sinaloa and Nayarit. Regarded as one of the most reliable woods growing in Mexico and undoubtedly the best for certain parts of ships. When placed in very dry places, however, it is liable to become brittle and break under heavy shearing stresses.

"Amapa Blanca.—Found all over the republic of Mexico; in the state of Sinaloa grows to a fairly large size and is quite straight. While the Amapa Blanca is not so durable and is more liable to decay than others of the Mexican hardwoods, it is considered well adapted to take its place among the most reliable materials in shipbuilding.

"Mora Amarillo (logwood).—Found all over the west coast of Mexico in great quantities, the most durable kinds being from the state of Sinaloa and Nayarit. Considered and proved to be one of the native woods most highly resistant to the effects of salt water, damp atmosphere, and rot induced by vegetable fungi. Its qualities as a dyewood are too well known to require comment.

"Arellano or Palo Colorado (rosewood).—One of the softest of Mexican hardwoods. Undoubtedly has the greatest resistance to decomposition induced by vegetable fungi of any of the native woods. It is found in Sinaloa, Nayarit, Colima, Jalisco, and Guerrero, and it is considered by the natives to be well adapted to constructions of all kinds where strength, durability and reliability are essential."

IN STRONG and characteristic fashion, the Southern Pine Association pledged itself to the service of the Government by adopting the following resolution at its recent impressive meeting at New Orleans:

"To accomplish our war aims, it is essential that the nation administer in a very large way our industrial efforts. To this end the War Industries Board was created. Fully appreciating our responsibility, we offer to the War Industries Board every resource of our industry and pledge our unreserved co-operation."

S EVERAL years ago basket-willow cuttings were furnished to a number of persons in District 6 of the United States Forest Service to find out if there are regions in the district specially adapted to the growing of the species. Mr. Luther J. Campbell, of Walla Walla, Washington, writes that he has been able to grow some good basket-willow from the cuttings. He sent 150 pounds to a furniture company, at Portland, who found it suitable for their use and requested him to take up basket-willow growing on a larger scale.

THE WHY OF THE "Y"

SOMEWHERE in the woods of France a big husky young American was swinging his ax with a vim which sent the music of his strokes echoing through the forest. He was many miles back from any firing line but he was working as if a regiment of Germans were about to fall upon him and his life depended on how many trees he could fell before they made the attack.

He was a member of a Forestry Regiment which had begun its wonderful work in France. It was getting dusk.

"Sam, I guess we'll call it a day now," said his superior officer.

"All right, lieutenant," replied Sam. "But if it's all the same to you, lieutenant, I'd like to work a little longer. I think I can clean up quite a bit yet before it gets too dark to see. I understand that some of this lumber we're cutting is going into one of the new Y. M. C. A. buildings over at ———, and that they want to get it up as quick as they can.

"You know, lieutenant," he continued, "I'm from way out almost in the back woods and I had never even heard of the Y. M. C. A., or the 'Y,' as the boys call it, until I got in the army. But I remember there was a Y. M. C. A. man with his Red Triangle on his sleeve passing out cakes of chocolate and cigarettes at the station when we

were starting off to embark; and I remember that there were some of those same fellows on the dock when we landed in France, and one of them said to me: 'What state are you from?' and when I said 'California,' he said, 'Why, that's my state, too.' I tell you it helped to have a friendly word like that and made me feel sort of home-

like. I had been feeling kind of blue. And then I remember seeing those 'Y' men along the way as we came out here; and they were always doing something to help somebody, it seemed to me.

"That is why I want to help them, lieutenant. They need the lumber for their huts and other buildings, and if I can do a little to help them get their buildings up quicker, I want to do it, if it is all right with you, Sir."

"Well, Sam," replied the young lieutenant, as he thought with distant eyes of the far-flung line in the United States and France over which the Y. M. C. A. had its messengers of good

cheer stretched, "if you want to work a while longer, go to it; and more power to your arm."

"Thank you, Sir," smiled Sam, as he touched his forehead in salute.

And that is why the merry blows of the American forester's ax were heard in that particular stretch of



WORKING UNDER FIRE

Y. M. C. A. workers distribute food and supplies to soldiers in advanced positions, carrying supplies five miles through trenches under fire. The front cover of this issue of American Forestry was inspired by this photograph, which is an actual picture of the exterior of a Y. M. C. A. canteen dug-out, situated only 150 yards from the Boche lines.

French woods long after the sun had gone down.

The men of the Y. M. C. A. are worthy of such unselfish assistance, for they are working night and day to perform the deeds of service and of helpfulness which are making the lives of the American soldiers and sailors so much happier. Without any more thought for their own safety than the soldier displays they disregard danger from shot and shell in order that they may be near "the boys." In their little shelters right up close to the firing line they pass out hot coffee and cakes of chocolate and give the final word of cheer to the fighters just before they go "over the top." They are there to help them and welcome them when they return wounded from the trenches or the charge. They give them food and drink, help to furnish first aid, often giving up their own beds in order that some soldier who needs rest may lie down and get a little nap.

The danger to which they are constantly exposed and the nature of the work they are doing is best shown by the fact that a large percentage of the "Y" men close to the front are hit by flying shells and wounded or killed. These soldiers of good cheer are brave men, worthy of the nation's highest praise, encouragement and support. But wherever these workers are,—at home, in the camps, in the ports where the American troops land, in the distributing centers in France or in shelters close to the jumping off place into "No Man's Land," they are doing a service which in the opinion of army officers and laymen alike is of the most vital character in helping to maintain the efficiency, both physical and mental, of the men who are fighting the battles of democracy.

There are approximately 2,500 American Y. M. C. A. workers, about 300 of them women, now serving American and French soldiers in almost 1,200 different centers throughout France. The familiar Red Triangle holds out its inviting sign to all alike; and no group of soldiers when looking for a place of rest or amusement, has to seek far afield. These havens dot the landscape,

shining out amid the hell-like night blaze of battle "like good deeds in a naughty world."

There is scarcely a comfort, except that of actual home, which the "Y" does not supply to Uncle Sam's fighting men. Moving pictures and lectures, school facilities and books, writing rooms and athletic outfits, pianos and phonographs, games and tobacco cutters—these and innumerable other things are among the outward signs of home surroundings which the organization provides for the soldiers.

One of the biggest phases of its work is the handling of the six hundred post exchanges of the American Expeditionary Forces. The total sales at these exchanges are expected to amount to \$75,000,000 a year. Every month from three to four thousand tons of post exchange supplies go from America to France, while additional supplies are purchased in England and France. Eight factories have been taken over in France by the Y. M. C. A. to fill the needs. Five of these factories are for the making of chocolate, of which the American troops eat 920,000 pounds a month, while the other three make biscuits and cookies.

In a single order recently the Y. M. C. A. bought 1,337 tons of tobacco of all kinds, chewing tobacco being purchased by the half-dozen carloads. At one time there was a single shipment of 900,000 cigars on the seas for the post exchanges.

In times of emergency large quantities of these supplies are given to the men. The post exchange enterprise is not a money-making one but the effort is to have it self-supporting. All goods sold at any time by the Red Triangle are handled through the post exchanges. All of the other vast facilities furnished by the Association are free. Approximately one million sheets of writing paper are given to the men every day. A fleet of about two hundred trucks and automobiles are maintained to transport pianos, books, stereopticons and other articles needed in the "Huts" so that none of them may be lacking even for a day in many of the requisites to the comfort and welfare of the American soldier.

"FOLLOW WASHINGTON TO THE END"

IN CONCLUDING a patriotic and most impressive address before the recent convention of the Southern Pine Association at New Orleans, Mr. John H. Kirby said: "It is our duty as Americans, as true-blue Americans and men, to get behind Washington in our program, whether we think it right or wrong.

"Our boys this very minute, over yonder, millions of American boys are 'going over the top' and offering themselves as willing sacrifices upon the altar of Liberty, to the end that the blessings of peace and the spirit of Democracy and Liberty may descend to our posterity. Let us not falter, let us go forward—whatever may be the sacrifice—and hold up their hands. Let us go forward as one man and co-operate with whatever plans Washington may formulate, not only for our industry but for all other industries. Let there be no 'slackers' among us, whether we approve or disapprove of the

plans that are formulated in Washington. Let us bear in mind that fathers in this country have given their sons to this great cause; that mothers have kissed their boys in khaki farewell, not knowing but that it was for eternity; that brave young wives have placed the sword in the hands of their husbands, and bid them 'Charge.' For God's sake, can we falter? Civilization is in the balance, Humanity is in the balance, Liberty is in the balance. Whatever Washington's plans may be to get men and send them over, provide for them, transport them; whatever bans they may put on industry, or whatever orders they may give out, let us obey. Let us say to Washington, as true-blue Americans,—whether we think they are right or wrong, we know that the more men they send, the fewer we will lose,—let us say to Washington: 'Win this fight, win it quick, and we will follow you to the end,—just point the way.'

THE USES OF WOOD

THE EMPLOYMENT OF WOOD AS HOUSE FINISH

BY HU MAXWELL

Editor's Note.—This is the sixth story in a series of important and very valuable articles, by Mr. Maxwell, on wood and its uses. The series will thoroughly cover the various phases of the subject, from the beginnings in the forest through the processes of logging, lumbering, transportation and milling, considering in detail the whole field of the utilization and manufacture of wood.

TIMBER and lumber used in their rough form for the frames and roofs of buildings were considered in preceding articles of this series; but these are not the only forms in which wood is employed in the construction of houses. Finishing material, or trim, is wanted for both the outside and the inside. This consists of stuff that has been through the planing mill or some other wood-working factory where it has been surfaced, cut, carved, or otherwise prepared by machinery for final use. It is included in the general term of mill-

a similar kind. They are not part of the building itself and frequently may be removed without much injury to the building or to the fixtures themselves. Furniture differs from both finish and fixtures in that it may be moved in and out at will without injury to itself or to the house. The three products, finish, fixtures, and furniture, are nearly always intimately associated in use and in statistics, but in the present article finish alone is considered. The wood from which finish is made is nearly always machine-worked so far as molding, beading, and



WHITE PINE EXTERIOR FINISH

Fine northern residences with massive columns and broad cornices have been constructed of white pine since colonial days, and many of the oldest of them remain in an excellent state of preservation till the present day. But all the details are not massive. Small balustrades, delicate moldings, and small latticework have their places also.

work; but that term is broad, and much millwork is not intended for house building.

There is a relationship between house finish, and store and office fixtures, and a relationship, also, between such fixtures and furniture, and it is not always easy to determine the dividing line separating them. However, some of the distinctions can be borne in mind and they will assist in segregating these related classes of woodwork. Finish is built in as a part of the house. It is not intended to be removed, and usually cannot be separated from the building without being destroyed or much damaged, and at the same time defacing the building from which it is taken. Fixtures include counters, show-cases, cabinets, shelving, low partitions which do not extend to the ceiling, and numerous other appliances of

polishing go, then carpenters cut, fit, and join the different parts. Formerly, before machinery was in much use, carpenters, cabinet makers, and joiners worked with planes, saws, augers, chisels, and other tools, to convert rough lumber into finish for houses. The processes were then very slow and the results were generally much below what passes for good finish only. Solomon is said to have had a considerable army of workmen getting out and fitting the finish of his Temple during several years, and it has been claimed that one modern planing mill and a dozen or so of good carpenters could duplicate the woodwork in the Temple in a few weeks. It is estimated that he did not use sixty thousand feet altogether. It is not necessary to go so far back to find how slow finish work used to be, and how mediocre the workmanship

generally was. It appears upon examination of the finish in very old houses which are still standing. There were some good joiners in those days of hand tools, and a few of them achieved excellent results; but the generality of the work done then in the line of interior finish was crude in comparison with what the planing mill and wood-working factory turn out at the present time.

Numerous and excellent machines have been invented for working in wood, and to them the credit is largely due for the fine trim which is now found, not only in expensive buildings, but likewise in those of only moderate cost. Joiners and carpenters are needed in as large numbers as ever, but by taking advantage of machine-dressed stock, they produce better work and more rapidly than their ancestors were able to do.

Finish is classified as interior and exterior, that belonging inside the house, and that intended for the outside. The principal inside items are ceiling, beams, wainscoting, molding, pilasters, frames, stairs, brackets, and ornaments. Floors are usually considered to be separate from finish, but the two belong in the same general class, and some manufacturers specialize in flooring. Items almost beyond counting belong with interior trim.

The outside of the house receives finish of wood, also, and the separate items are no less numerous than those belonging inside, but the larger of such are cornice, porch columns, railing, balusters, and window and door frames. One part of the frame may be regarded as outside finish, the other as inside, for the frame may extend through the wall. The siding or weatherboarding is some-



WHITE PINE CORNICE DETAIL

Though white pine is one of our softest woods, its ability to stand long exposure to the weather is remarkable. The secret of this lies principally in the fine painting qualities of this pine. Oil and white lead adhere to its smooth surface and exclude dampness, thereby hindering decay and weathering. Fine detail lines remain sharp and distinct.



RICH BUT NOT GAUDY

The accompanying picture of a doorway of white pine attracts by its plainness and perfect harmony. From the days of the Puritan Fathers down to the present time the northern white pine has held its place against all rivals as material for exterior and interior finish, and particularly as doorways of simple plainness.

times regarded as finish and sometimes otherwise. In that

respect it is like flooring. Buildings of nearly all kinds require wood trim either outside or in, or both. The house of brick, stone, or cement is no exception. Wood is the most popular and most widely used finish, though in some instances metal, marble, tile, or some other material takes its place. The cheapness or the costliness of a house does not determine whether the trim shall be of wood or of something else. Houses of great cost use the output of the planing mill for ceilings, panels, columns, and stairs and the modest cottage does the same. Wood serves the poor and appeals to the rich, and it ministers to the wants and the tastes of both without prejudice or distinction. But there are differences in the way it is used and in the motives leading to its employment, depending upon the builder's skill, purse, purpose, and education. A wooden stair may be as rude and coarse as the ladder leading to the haymow of a barn, or it may be fine and faultless enough for a palace; ceilings may be common or they may be exquisite; posts and columns may be simple and small or carved and massive. Wood serves for all, meets multitudes of demands, in all places and under various circumstances.

Exterior woodwork is usually painted to protect it against the weather; but paint is not needed to protect inside finish, though paint may be used for the sake of appearances. Wood which does duty outside would soon become weathered and dull, unless covered with paint; yet, sometimes a weathered and dull appearance is precisely what is wanted, especially for siding and shingles, and these are frequently and purposely left unpainted, and when they take on the color of a hornet's nest, they are regarded as very artistic. The exteriors of most houses are kept well acquainted with the paint brush. The life of weatherboarding is easily

doubled by being protected with a coating of linseed oil and white lead, while porch columns and balusters are apt to take on an appearance of seediness and neglect if left exposed to the elements. Outside house painting is for protection and appearance.

Some interior finish is painted, some is treated with oils, varnishes, and stains which are not intended to conceal the color, grain, and figure of the wood. Paint, being opaque, hides the wood. As to whether oils or paints are preferred, depends largely on the tastes of the owner, but also somewhat on the kind of wood used. Those without attractive color or figure may look better if covered with paint; but if the wood itself is beautiful, it is foolishness to hide it behind the finest paint procurable. Figured and colored woods are oftenest used inside where transparent oils will leave the beauty exposed to view; but no purpose is served by employing such woods outside where weathering will spoil or where paint will conceal them. When rough

lumber is used in the frames and roofs of houses, no attention is paid to the wood's color or figure, or the lack of them; but the case is different with interiors. In coarse, undressed frames, the strength, stiffness, and durability are the chief considerations, but these are not much thought of in

planning finish; for here value is placed upon beauty above everything else, particularly for inside finish.

Both hardwoods and softwoods are employed in interior finish, and both are used outside; but there is wide room for intelligent selection. Generally, hardwoods are liked best for interiors and softwoods outside; but the exceptions to this arrangement are many. For outside

work, the pines have always been in favor, especially the soft pines which exude little resin to mar the paint that is put on them. In the northern region, white pine was always a favorite for weatherboarding, for window and door frames, posts and columns for porches, balusters and railing, and for cornice. That is no less true now than it was a century or two centuries ago when the respectable old New England and New York houses were being erected. The pine was easy to work, and neither sun nor storm ever warped it, and through all vicissitudes of fortune it remained in line as true as a gun barrel.

Some of those

old porches and doorways have come down to the present day, and are an inspiration to the modern architect, a compliment to the skill of the old carpenters, and a recommendation of the qualities of the pine that once clothed so much of the Northeast and which still abounds in



A CLASSIC WOODEN PORTICO

Simple beauty has reached very nearly perfection in this style of architecture. This is a view of the portico of the Lincoln House at Manchester-by-the-sea, Massachusetts. It is from the Mary H. Northend collection and is here shown by the courtesy of the Northern White Pine Bureau, St. Paul, Minnesota.

many localities. White pine siding more than a century old stands as well yet as that which has gone in place recently. It may finally wear out without checking or warping.

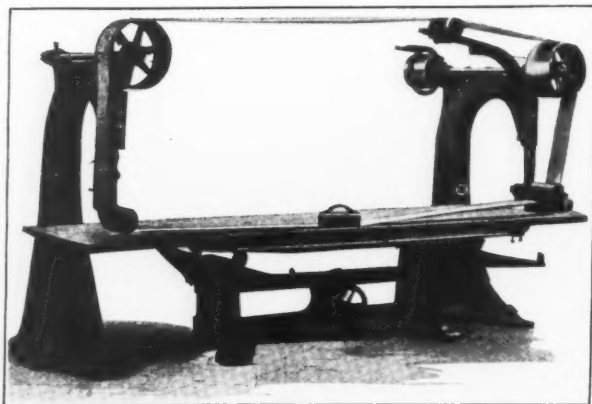
The South has and has always had excellent woods for exterior finish, and claims equal honors with the North in that respect. Cypress and the yellow pines uphold the reputation of the southern states, where old buildings, as well as new, display these woods in outside trim, such as weatherboarding, porches, cornices, and prove the excellence and beauty of wood in ambitious buildings, as well as in small.

The central hardwood regions of the East have contributed in yellow poplar perhaps the best hardwood for exterior finish. This poplar grows to be the largest

hardwood tree of the United States and no other exceeds it in the romance of botany and history. No wood of this country paints to better advantage, and that fact has been largely responsible for this wood's popularity as weatherboarding, cornice, and porch-work.

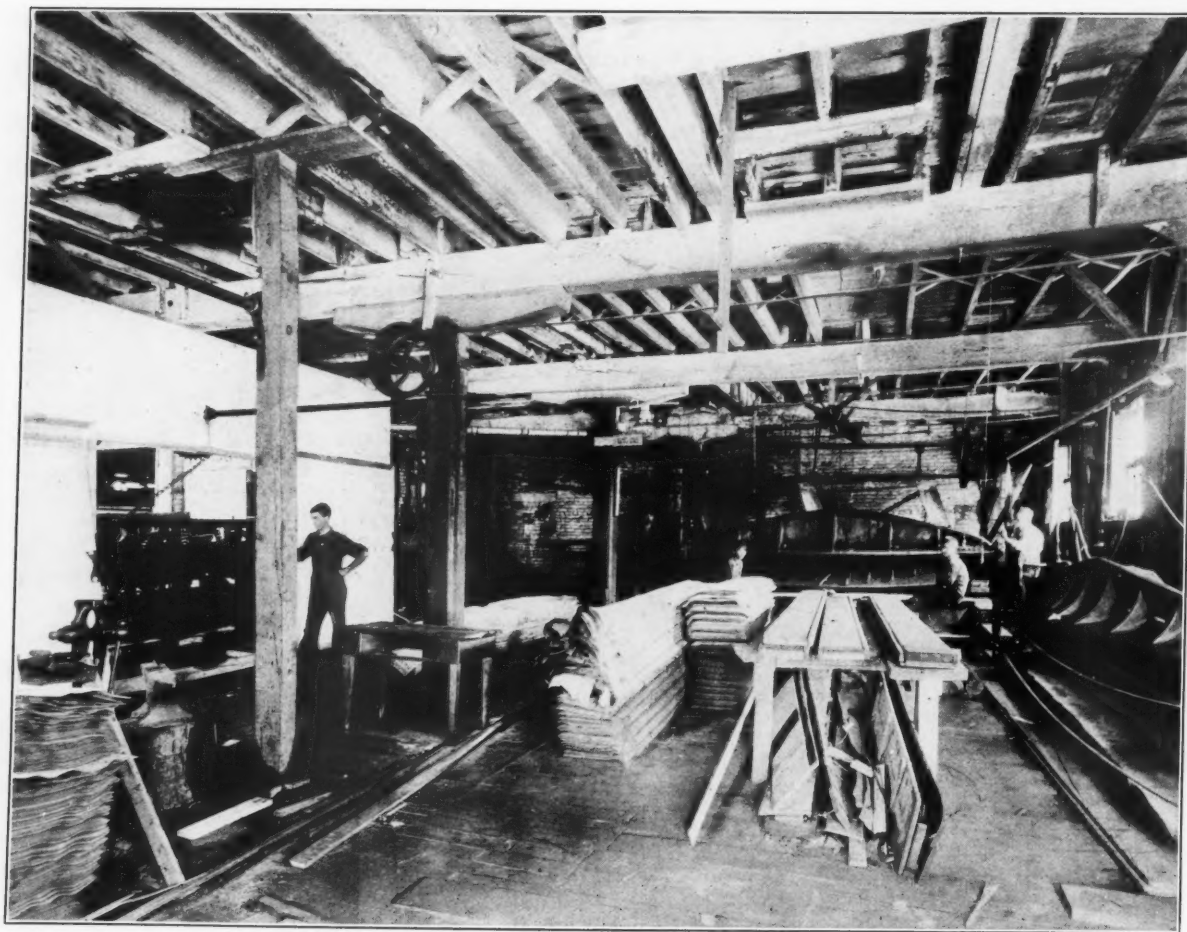
The far West, too, has its excellent woods for outside trim, but they do not have the long records of use which belong to some of the eastern species. The western country has not been settled long enough for that. They are softwoods, and chief among them are redwood, sugar pine, and Douglas fir. Redwood's

smoothness of grain and its painting qualities measure with the best everywhere, and its durability in outside finish is all that the builder could ask. No portion of the



OPEN END BELT SANDER

Wood for interior finish and furniture is polished with a sand belt passing over pulleys. It does the work of several men operating by hand. Many types of sanding machines are made. The one here shown is manufactured by the Mattison Machine Works, Beloit, Wisconsin.



WHERE FINISHING VENEERS COME FROM

Here is shown the interior of a veneer mill with its enormous slicing machines which convert logs into the thin sheets used by manufacturers of high grade interior finish. Most of the material passing through such a mill is finely-figured hardwood from our own forests or from distant lands.

exterior work of a house attracts more attention or is worthy of more, than porches. It does not matter how pretentious a house may be, a well planned porch will add much; and at the same time it is equally true that no dwelling is so small but that a porch will improve its appearance. The salient features of a porch are its posts or columns, its balustrades, and its cornice, and in these are found the highest uses of exterior finish made of wood. Take away the porch columns from the venerable edifices which have come down from former generations, and a void is felt which nothing else can fill; and the absence of such columns from the imposing houses of the present impresses the beholder as being akin to inexcusable stin-giness. Strip the pine columns from the front of the Washington home at Mount Vernon, and something of the reverence which one feels for that classic place would vanish. The Greeks knew what porch columns were worth, or they would not have lavished so much time, science, and labor on them.

The extra fine touches bestowed on the outside of a house are primarily for the purpose of

making a favorable impression upon passers-by and others who may never enter the doors; but the inside finish is meant for a restricted and select class of observers—the occupants. A few choice woods serve as outside trim, but there is no practical limit to the number of those which hold places of honor within. The artistic taste of the builder, and the fatness of his purse, decide what

woods and what quantities shall appear in ceilings, panels, wainscot, and stair. The cottage and the cabin may not have many or costly woods, and the workmanship may be mediocre; but even there it may be taken for granted that if the builder has not used the best he could afford and used it to the best advantage within his means, it is because his tastes are uncultivated or his sense of beauty defective.

The improvement in architectural instincts or education, and the development of ideas, are seen in few things

to better advantage than in the changes that have taken place in stair building in the homes of the common people during the last century or so. A study of the interior arrangement of old houses which have survived the grandchildren of the original owners, usually reveals the stair as a plain and rather meanly-planned contrivance for reaching upper floors and descending from them. Too often it is apparent that no glimmer of a sense of beauty was in the mind of the builder. His stair was for use and for absolutely nothing else. It was frequently planked in and concealed from



A SPLENDID CORNER IN OAK

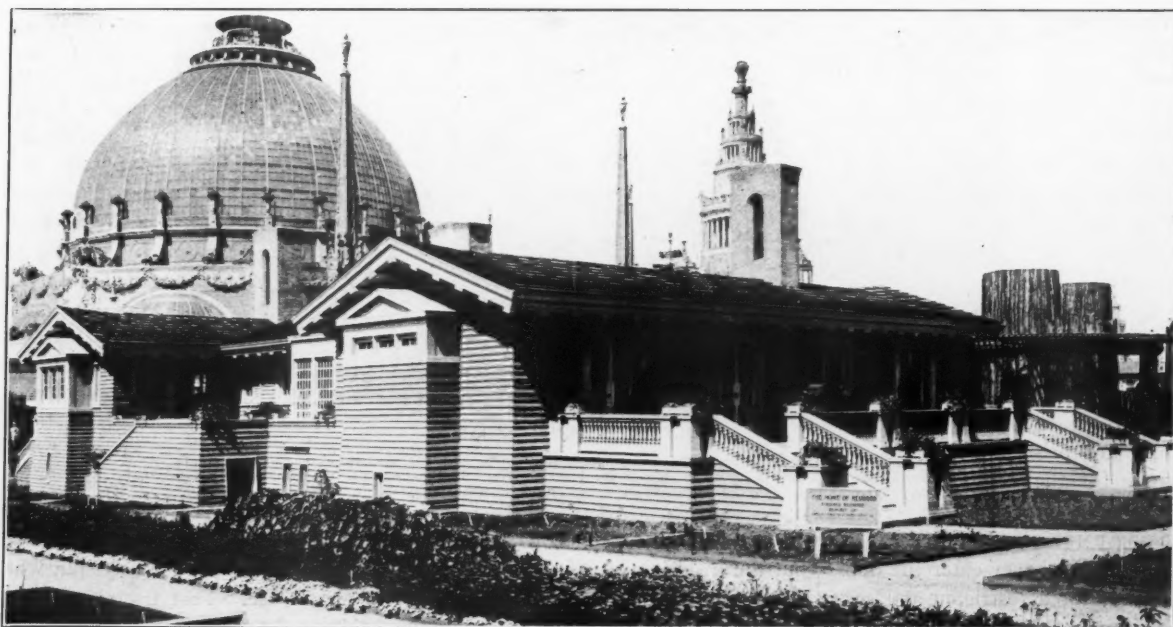
The quarter sawing is brought out nicely and the figures harmonize with the moderate sizes of the panels. Therein lies one of the advantages of using oak for interior trim. It can be made to match nearly any kind of tasty surroundings and the architect finds it an easy wood to work into combinations.

sight, and the only visible sign of its presence was a door leading to it, and the door was kept religiously shut when the stair was not in actual use. That explains why so little is generally said on the subject of stairways by persons who preserve or describe old buildings. The less attention called to such stair, in many instances, the better, because in the old buildings they too often suggest



KITCHEN FINISH IN DOUGLAS FIR

Parlors and front halls hold no monopoly of fine finish woods, as is apparent in the accompanying picture of kitchen with fir cupboards, cabinets and shelving. This wood's natural whiteness and clean appearance are assets in its favor in work of this kind, which does not call for a display of figure. Photograph by the courtesy of the West Coast Lumbermen's Association, Seattle, Washington.



EXTERIOR FINISH OF REDWOOD

This remarkable bungalow was one of the features of the San Francisco World's Fair, and the possibilities of redwood in work of this character are well brought out. No color contrasts are apparent, but beauty and dignity are combined. The photograph for this illustration was furnished by the California Redwood Association, San Francisco.

passageways leading from one story to another as described by Dante in the first book of his great poem.

The modern builder, whether he plans a cottage or a mansion, tries to do something artistic in his treatment of the stairway. He is awake to the opportunity to do something handsome with that part of the interior. He selects fine woods and gives them harmonious grouping. He is a stingy or a stupid builder these days who is unwilling to spend some money on his staircase, for he knows that he will be judged largely by that feature of his work.

It would be an error



A LOUNGE HALL IN REDWOOD

Californians are proud of their redwood, and they may well be, for they have the entire world's supply and it comes from the largest trees in the world. The wood is popular both as exterior and interior finish both plain and figured. The illustration shows panels of natural redwood. The photograph was supplied by the courtesy of the California Redwood Association, San Francisco.

to suppose that the high class stairway is an invention of the present generation, or that the immediately preceding generation invented it. There have long been builders of attractive stairs. Some who died long ago were the peers of any now living. But those of former periods were few and they lived ahead of their time. We should not forget the debt we owe them or fail to feel thankful that they lived at all. The first man who conceived, planned, and built a pretty stair deserves a place of honor beside the first man who wrote an inspiring poem, and the first who drew a picture with a good perspective. They all three taught how to see things in a better



THE STAIRWAY'S PLACE IN ARCHITECTURE

The ambitious architect and the competent builder do their best work on stairways, for a stairway may be made a building's most attractive feature. That shown in the accompanying illustration is of red gum. The wood is not highly figured but is strong in its simplicity and elegance, and is in harmony with the richest associations.



MANTEL AND BOOK SHELVES

The fine appearance presented by red gum panels well displayed, is apparent here in this fire place and its surrounding wood work. The color of the wood harmonizes almost perfectly with the tones of the tiles of the jams and the hearth. The ceiling panels belong to another group.

light. The maker of interior finish draws upon every available wood that has beauty of grain, figure, or color. He is not much concerned with strength, for all woods are strong enough for such trim, except in a few situations where the stresses are above the average. Certain characteristics, however, are carefully looked after. The woods are liked best which shrink and swell little during seasonal and weather changes. It may not be generally known that interior finish responds more noticeably to the changes of the seasons than the outside finish which is directly exposed to the weather. The wood within the house swells in summer and shrinks in winter, due to summer dampness when the windows are open, and to artificial heat and dryness when the winter fires are burning in furnaces and stoves. Interior panels and joinings which are not made of well seasoned wood and put together in a substantial manner, are liable to check on account of dryness, or to swell in dampness, and the swelling will manifest itself in doors which refuse to shut, or in drawers which scrape against the sides, or in window sash which stick and hang with perversity to try

the patience of Job. In order to lessen the propensity to shrink, swell, and check, inside woodwork is oiled or varnished, or stained or painted. This helps the cause, but it does not wholly prevent the undesirable results.

Both hardwoods and softwoods have places as inside trim. Almost every commercial wood is found in this industry. In point of number of species, the hardwoods exceed the softwoods, but in quantity of material it is probable that the softwoods lead. Pine meets the largest demand for softwoods in this industry, followed in the order named by Douglas fir, spruce, cedar, hemlock, cypress, and redwood. The principal hardwoods in the supply list, named in the order of their importance, are: oak, maple, yellow poplar, birch, gum, chestnut, basswood, beech, cottonwood, ash, and tupelo. Foreign woods fill a rather important place in the industry, and mahogany leads, followed by Circassian walnut in normal times, but the use of this walnut has almost ceased since the war cut off the supply. Other foreign woods contributing to the supply of inside finish are padouk, teak, ebony, rosewood, prima vera, and satinwood.



FIGURED RED GUM FIXTURES

The most perfect imitation of Circassian walnut is supplied by red gum if the figure is carefully selected, but the two woods may be distinguished, one from the other by their pores, those of walnut being the larger and more prominent. The walnut usually shows stronger contrasts of colors in the figure, the dark tones being deeper than those of gum.



BIRCH INTERIOR TRIM AT ITS BEST

The birch finish of the dining room here exhibited came from the Wisconsin forests. This wood may be given practically any tone or color desired, and the smooth surface always betrays the high-class of the material. It never looks cheap and it never has a tendency to cheapen its surroundings.

Some woods for interior work are chosen for their figures, others on account of their color, and still others because of the smooth surface which may be given them, and the excellent manner in which they receive and hold paint. Yellow pine and Douglas fir are not surpassed in richness of figures by any other softwoods of this country. Their figure is formed by contrast of color in the annual growth rings. Cypress responds readily to treatment to accentuate the figure due to the growth rings. The novel and artistic "sugi" effect is produced by scraping out the soft portions of the rings, and is not an inherent figure in the wood. Redwood is treated in the same way. Redwood and cedar rank high among softwoods for richness of color, but they have little figure. The figure of hemlock is often strong and shows well under high polish. White pine and the spruces have little color or figure. They are among the plainest of woods, but they possess excellent qualities. White pine is one of the best of woods to display enamel and paint, because of the smooth surface that may be given it.

It is not practicable to list the hardwoods in the finish

industry and specify what prominent characters best fit each for trim, but the woods may be partly included in groups. At least 100 species of American hardwoods contribute to the country's interior finish. The oaks have two kinds of figure, one formed by the contrast of colors in the rings, the other produced by quarter sawing to expose to view the bright surfaces of the medullary rays. Oak responds splendidly to the application of stains and fillers which enter the wood's pores and heighten the contrast or color. Walnut possesses two kinds of figures, one due to rings, the other dependent upon pigments dispersed irregularly through the wood, forming lighter or darker areas. Red gum's figure is due to irregularly deposited pigments, the same as in the walnuts. This wood is a good substitute for Circassian walnut, and so closely do the two woods resemble each other that the difference is apparent only to persons well acquainted with both woods. Maple is highly figured in two general patterns, bird's eye and wavy, the former being most common. Both figures are believed to be caused by regular changes in direction of the fibres. Birch has the

wavy or curly figure, due, as is supposed, to the reflection of light from fibres which run in waves or spirals.

No wood displays figure to the best advantage until its surface has been polished; and for that reason finely figured woods are seldom used as flooring because the chafing due to wear soon dulls the polish of the surface and the figures fade. The figures of wood are displayed to best advantage in broad surfaces like panels, doors, pilasters, and wainscoting, where the light is good



HIGHLY ARTISTIC PLAINNESS

Nothing could be in better taste than this Douglas fir finish for a living room in a Pacific Coast residence. Though this wood may be had in highly figured stock, many persons prefer that which is absolutely plain when they plan finish for the rooms in which they spend most of their time. They never tire of it.

but the glare and brightness are absent.

Sash, doors, and blinds are sometimes considered as finish and sometimes they are placed in an industry to themselves. Many factories which produce them do not make other kinds of finish.

Statistics have not been compiled in a way to show the annual demand for finish as separate from other stuff, but the whole group, including planing mill products, sash, doors, blinds, and general mill-work requires 13,000,000,000 feet a year in the United States.



OUTSIDE FINISH MODESTLY APPLIED

The doors, balconies, cornices and windows of this pleasing residence display wood in subdued elegance. There are no sharp contrasts to disturb the harmony. It is the residence of J. C. Foute, Oshkosh, Wisconsin, Auler and Jensen, architects. The interior is of enameled birch.

LION'S FOOT, THE JEWEL WEEDS, AND OTHER AUTUMN PLANTS

(WITH A BRIEF ACCOUNT OF CENTIPEDES AND WHIP-TAILED SCORPIONS)

BY MAJOR R. W. SHUFELDT, C. M. Z. S., ETC.

MEDICAL CORPS, U. S. ARMY, WASHINGTON, D. C.

NATURE is quite oblivious to the terrible and stupendous tragedies now being enacted in many parts of the world; nature always has preserved this attitude—the machinations of man to the contrary. Men may saturate the soil with the life-blood of the combatants' millions, with the tears of armies of women and children, and devastate civilization's structures of the centuries—yet, only where man does his slaughtering, his burning, his incessant shell and mine exploding, and such other wholesale destruction as follows in the wake of his warring millions, does nature stand, for the time, aghast at his savagery, succumbs to the grinding of his merciless

heel, or shrivels under the searing engendered by the ceaseless fire of his countless weapons of destruction, of every conceivable description.

In ages to come, the shell-riven fields of France, rendered hideous by the forces and power of man's modern means of destruction, will again grow a soft, green turf; will once more admit of the unhindered blossoming of flowers, and permit the birds to return to the trees and hedgerows, to build their nests and rear their young, as they did in the happy days of peace.

Well may that country be congratulated which has escaped such devastation; whose forests and fields have



PIERCE'S MILL (ROCK CREEK PARK), WASHINGTON'S SUBURBS. A SUNSET SCENE LATE IN SUMMER

Fig. 1—Far up this stream, in Maryland, many of the flowers that have illustrated these articles in *American Forestry* have been gathered. This shows Oaks and Beech in September leaf.

not known the effects of battling armies, whose streams and rivers have not been dyed with human blood and choked with the bodies of war's victims.

Often it is that nature gains in times of conflicting nations; for the bird-destroying gun of the thoughtless frequenter of

the woods is exchanged for the weapon of war, and the meadows and suburban timbered districts enjoy a partial rest from the ravages of the usual hosts of ramblers that hie thither in times of tranquil-

limits. Along the borders of rich woods in October, for instance, or in the near neighborhood of some dense thicket, we may meet with a specimen of the not too abundant Lion's foot (Fig. 2)—so named from the curious form of some of its larger leaves. In such localities, this interesting plant flourishes over the greater parts of the eastern United States. It may grow to be a yard high, and it will be recognized by its stout, purplish stem and drooping heads of curious flowers, which are usually whitish in color and not infrequently tinged with purple. Note that they are always nodding on their stems like so many little bells, each with its bunch of cinnamon-colored styles protruding beyond the flower, awaiting the insect visitors. Among the other species in this genus *Prenanthes* we have the one known in some places by the common name of Gall-of-the-Earth (*Prenanthes serpentina*), which appears to be confined to the Atlantic tier of States, as far around as Alabama. In the upper part of the

same region, and bearing the same vernacular name, we have *Prenanthes trifoliolata*, so called on account of its thin, usually petioled, 3-divided leaves.

Again, in the sandy pine barrens of New Jersey, it is not difficult to find specimens of the slender Rattle-snake root (*Prenanthes virgata*), and there are fully half a dozen other well-marked species, some of which range westward as far as the Rocky Mountains, while



WE HAVE SOME CURIOUS PLANTS WITH STRANGE FLOWERS IN THE *Compositae* OR COMPOSITE FAMILY; THIS IS ONE OF THEM. AND FROM THE DROOPING BLOSSOMS OF THE VARIOUS SPECIES, THEY HAVE BEEN GROUPED IN THE GENUS *Prenanthes*.

Fig. 2—*Prenanthes alba*, by some writers called *Nabalus albus*, bears the common name of Lion's Foot from its leaf; for other reasons it has been named White Lettuce, Rattle-snake Root and Canker Weed. Its tuberous roots are extremely bitter.

lity. War workers have scant time for country outings, while even joy-riders have other uses for their cars than to carry great bunches of ruthlessly gathered wild flowers and branches of flowering trees.

For reasons not far to seek, in some countries the birds and small mammals are again becoming more or less abundant; at the same time, the demand for great quantities of timber jars the vegetable world in many regions, in a manner heretofore unknown to its usual quiescence. Millions of trees are tumbling to man's merciless axe and saw, and the lowly plants suffer severely from his down-tramping where this timber is sought.

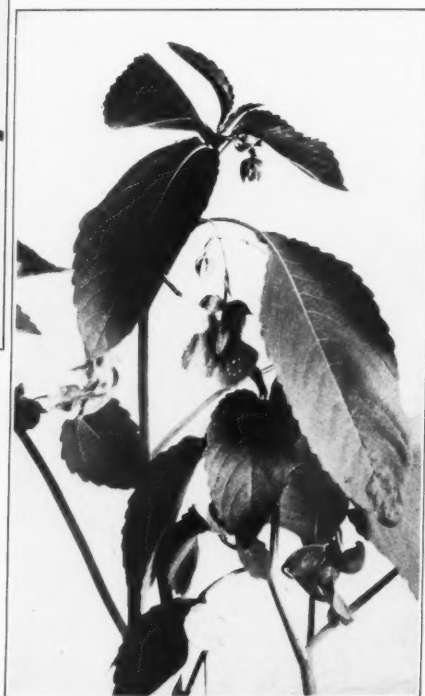
Let not all this discourage us. Nature will arise and re-establish her rule in many, many places; while with us here, in this country, she is actually enjoying, in not a few regions, a rest from man's interference. There are wild flowers in plenty for us to study, and no especially keen power of observation is required to gather a bunch just beyond one's city



WHEN A FLOWER IS KNOWN BY A GREAT NUMBER OF VERNACULAR NAMES, WE MAY BE SURE THAT IT IS A FAMILIAR PLANT TO NEARLY EVERYONE WHEREVER IT GROWS, OR ELSE IT POSSESSES NUMEROUS CURIOUS CHARACTERS; THIS IS THE CASE WITH OUR TWO BALSAMS OF THE *Balsaminaceae*.

Fig. 3—Balsams or Jewelweeds belong in the genus *Impatiens*; this is the *Impatiens biflora*, so named for the reason that the flowers are, in most instances, in pairs, while in other cases four of their slender peduncles may be springing from a single leaf-axil—each bearing its blossom.

P. boottii is an alpine form, occurring in the mountains of New England and New York. Among the near relatives of Lion's foot we find the dandelions, lettuce, and



IN SOME RESPECTS, THIS IS AN EVEN HANDSOMER SPECIES OF BALSAM THAN THE MORE ABUNDANT ONE WITH THE ORANGE FLOWERS (Fig. 2). BOTH FLOWERS AND LEAVES ARE LARGER, THE FORMER BEING A PALE YELLOW—HENCE ITS NAME, *Impatiens pallida*.

Fig. 4—Some know this pale Touch-me-not as *I. aurea*, on account of its golden flowers. The lower blossom in the cut shows the incurved spur very well. It has a beautiful leaf.

the hawkweeds, but all of these bloom much earlier in the season.

In our northeastern sections we have another very beautiful genus of flowers in the Touch-me-not family, well known as the American Balsams. (Figs. 3 and 4.) They may still be found in bloom in the early days of October, the plant growing in masses in swampy, wet places along the shady banks of small streams and rills. Their seed-pods burst upon the slightest touch—hence one of their common names, while the plant will begin to wilt and droop the moment after it is plucked. This renders it extremely difficult to photograph, and the specimens here figured were only obtained after many trials. The best way is to get a plant, as perfect a one as possible, early in the morning of a gray day, and transport it, roots and all, to the place where the photograph is to be taken. Even with these precautions failure is sometimes the only reward. However, it is well worth the effort, and through it we have the two species shown here in all their glory.

In some regions where our Ruby-throated Hummingbirds may still be found in abundance, we will see many of them at a time paying their respects to these beautiful flowers, where the plants grow in masses, and where few people visit to frighten them away. You may be sure that these winged jewels of the air are chiefly responsible for the perpetuation of these species of balsams, although insects of several kinds also do their part.

These little ruddy "horns-of-plenty" have been likened to a certain style of ladies' ear-rings; hence the name Jewel-weed; on the other hand, owing to the leaves not shedding the rain, but collecting it in glistening drops upon their serrated margins, this may likewise be responsible for the appellation. To note this, we have but to dip a freshly plucked leaf in water, and the point in question will be demonstrated; for upon being lifted out, it will appear almost as though silvered or thinly coated with quicksilver. There is a sort of hair-trigger arrangement at

the extremity of the seed-pod of the Jewel-weed which we have but to lightly touch in the ripened structure to have it pop suddenly open, and the seeds are tossed about, not a few of them landing several feet away. It is thus that the plant is spread over the area where it thrives. But this method does not ensure great rapidity of extension, perhaps only a few feet each season. As a matter of fact, when one comes to think of it, we usually meet with Jewel-weed growing in restricted masses, only rarely covering extended areas, as in the case of borders of little-frequented ponds in secluded

woods, or in marshes seldom penetrated by man. In such localities the plants may, in years, come to fringe the water's edge all about; but the progress is very slow. As may be readily appreciated, birds have but little or nothing to do with disseminating the seeds of the Touch-me-nots, probably only a small swamp warbler would ever see them, and they are not seed eaters. In the last issue of AMERICAN FORESTRY an account is given of the plant called Dodder; it is an interesting fact that the jewel-weeds are especial sufferers from its parasitic propensities. We still have a great deal to learn about these interesting balsams, but such researches will now remain at a standstill, more or less, until the war comes to an end.

Alice Lounsberry, in her "Guide to the Wild Flowers," devotes fully half a page to *Impatiens biflora*, the species of Jewel-weed just considered; but we should read that account with a certain amount of caution. She states that the flowers are arranged in clusters instead of in pairs, as the name indicates. She further says that the plant grows by "bright running streams;" that at all times its leaves are hung with dew-drops; that the flowers are dependent upon insects for fertilization. Finally, she says that when the seed-pods burst, the seed are thrown "to a considerable distance." Surely not a very safe guide to the study of our wild flowers—too many slips in one paragraph.

The pale yellow Jewel-weed, with its big yellow flowers,



OAK GALLS, OR "OAK APPLES," PRESENT MANY UNUSUAL SHAPES. HERE ARE THREE ON THE LEAVES AND TWIGS OF A LIVE OAK; THEY ARE WONDERFULLY SYMMETRICAL IN FORM AND OF RATHER LARGE SIZE.

Fig. 5—These adnormal growths are due to the entrance of the larvae of certain insects into the substance of the leaf or twig, the gall forming at the point of the wound; they often yield over 75 per cent of tannin.

is not nearly as abundant a plant as the Spotted Touch-me-not; though sometimes it may be met with in masses, as along the Georgetown Canal, about a mile out of the city of Washington.

Often, in going through the oak forests in October, we will note peculiar globular growths on the leaves of some of the trees, examples of which are here shown in Figure 5. They are green during the spring, summer, and early autumn months, but turn a pale tan when the leaves turn. They have different forms, and one versed in such matters can determine which species of insect, or rather its larva, it was that produced that particular abnormal growth through its attack on the leaf or leaves. In ancient literature, these excrescences were known as "Dead Sea Fruit" or "Apples of Sodom;" and in California today the

and upon the uses of tannin and the dyes made from them; but it need not detain us here, as space admits only of giving their general appearance and how they are produced. (Fig. 5.)

Many trees and shrubs in October, in the northern sections of the country, have their leaves turn to gorgeous colors before "the fall;" chief among the tints are the bright tans, the reds and scarlet, the yellows and the oranges. In many instances, these brilliant colors will be off-set by the remaining greens of the summer leaves. Our maples, dogwoods, and some of the oaks are well known examples; and in some seasons, when the conditions are favorable, the Black Haw constitutes another addition to the list. When such is the case, its yellow and scarlet leaves, interspersed with those of glistening green, are sure of our admiration, especially when such foliage offsets the beautifully



WE HAVE HERE A SUPERB GROUP OF POKEBERRY PLANTS. PHOTOGRAPHED *in situ* IN AN OLD FIELD OF GREAT EXTENT, IN WHICH THOUSANDS OF QUEEN ANNE'S LACE WERE IN FULL FLOWER.

Fig. 6—The generic name of this Pokeweed—*Phytolacca*—is an unfortunate compounding of Greek and French words, the first two syllables meaning a plant, and the last two from the French *lac* (lake), inviting attention to the crimson color of the berries.

buds of the live-oak, or any other species for that matter, it will not be long before curious little wasp-like insects will be observed puncturing the tender leaves, and depositing their eggs in the wounds. A fortnight thereafter, those leaves, which have come to be an inch or more in length, will have upon them, here and there, little globular, bright green bodies, which represent the commencement of so many oak-galls. There is a rich literature extant on the subject of these galls,



IN THE "BLACK HAW" (*Viburnum prunifolium*) WE HAVE A SHRUB OR SMALL TREE-REPRESENTATIVE OF THE HONEYSUCKLE FAMILY (*Caprifoliaceae*), IN WHICH GROUP OCCUR THE ARROW WOODS, THE CRANBERRY TREE, THE WAYFARING TREE, AND OTHERS.

Fig. 7—Late in September the Black Haw berry is in fruit, and a beautiful example of it is here shown. The ellipsoidal drupes are of a rich blue-black color, and the leaves are finely serrated.

galls produced by *Cynips* are known as "flea seeds."

If in the spring one will take the trouble to carefully study the opening

formed and dark-colored fruit. (Fig. 5.) Strange to relate, the botanical classification now in use places this "tree or shrub" in the Honeysuckle family (*Caprifoliaceae*), in which occur all the various species of Honeysuckle; the Twin-flower (*Linnaea*); the Snowberry; Horse Gentian; Elder-bush, and other apparently distantly related plants, though the arrangement or classification can, with success, be readily defended.

Every one will be likely to recognize the plant here shown in Figures 6 and 10, as it is very abundant in many sections



TWO WELL-KNOWN SPECIES OF CLEMATIS OR VIRGIN'S BOWER HAVE BEEN DESCRIBED AS GROWING NEAR WASHINGTON, DISTRICT OF COLUMBIA; THE ONE HERE FIGURED IS THE VIRGINIA CLEMATIS (*C. virginiana*), AND THE OTHER IS *Clematis verticillaris*. THE LATTER OCCURS AS FAR SOUTH AS WEST VIRGINIA.

Fig. 8—Clematis is a somewhat numerous assemblage of climbing plants, together constituting the genus *Clematis* of the Crowfoot family (*Ranunculaceae*). Most of them belong in the flora of the eastern United States.

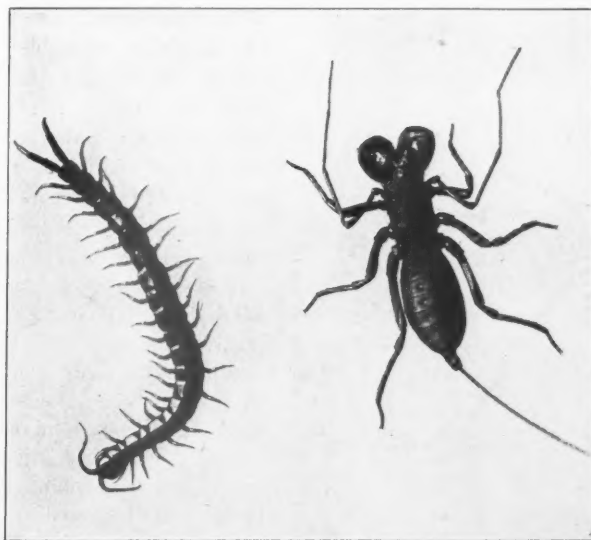
of our country, and very conspicuous when allowed to reach the full measure of its growth. Its small flowers are white, tinted with bright pink on the outside. As suggested in Figure 10, they are arranged in fine racemes, sometimes fully ten inches in length. This Poke-weed, also called Pigeon-berry, Scoke, and Garget, and by still others the Ink-berry, flowers from early summer to October, and thrives from southern Canada and Maine to the Gulf. Its favorite localities are along highways in the country; in the corners of old fields; open pastures, and similar places. Often it is found far within city limits, growing in lots not yet built upon, and in certain

When our wild pigeon was with us in countless millions, the bird was extravagantly fond of these poke-weed berries—hence the name of “pigeon-berry.” The vernacular synonym is a grim reminder of man’s extermination, by fowling-piece and net, of this superb representative of our avifauna.

References were made in previous issues of AMERICAN FORESTRY to Solomon’s Seal and the beautiful climbing Clematis. Different stages in the growths of these interesting plants can now be given, and thus more fully illustrate what was said about them in the aforesaid earlier numbers of this magazine (Figs. 8 and 12). This month of October is the time of the year to find them as they are shown here, and both are well worthy of our consideration and study.

CENTIPEDES AND WHIP-TAILED SCORPIONS

In our homes as well as in nature there is quite an extensive group of forms that most people know as “thousand-legs.” They are very interesting, extremely



THE COMMON FLORIDA CENTIPEDE IS HERE SHOWN IN THE LEFT HAND FIGURE OF THIS CUT. THE WHIP-TAILED SCORPION BEING THE OTHER FORM ILLUSTRATED. (See Fig. 12.)

Fig. 9—Centipedes formerly constituted the Class *Myriapoda*, and many still recognize that group. There are many species of them occurring throughout the world in temperate and tropical regions. Some of the species are at least a foot in length, and the bite of one of these is extremely painful.

waste places. The roots are said to be poisonous; yet some country folk boil the young shoots with asparagus, and partake of the combination without disastrous effects.

Neltje Blanchan invites our attention to the plant by pointing out the fact that “the large leaves, and even the footstalks, take on splendid tints of crimson lake, and the dark berries hang heavy with juice in the thickets; then the birds, with increased, hungry families, gather in flocks as a preliminary step to traveling southward. Has the brilliant, strong-scented plant no ulterior motive in thus attracting their attention at this particular time? Surely! Robins, flickers, and downy woodpeckers, chewinks, and rose-breasted grosbeaks, among other feathered agents, may be detected in the act of gormandizing on the fruit, whose undigested seeds they will disperse far and wide. Their droppings form the best of fertilizers for young seedlings; therefore the plants which depend on birds to distribute seeds, as most berry-bearers do, send their children abroad to found new colonies, well equipped for a vigorous start in life.”



FROM JULY TO SEPTEMBER THERE IS NO BETTER KNOWN PLANT IN THE UNITED STATES THAN THE COMMON POKE WEED OR POKEBERRY (*Phytolacca decandra*); IN THE CUT WE HAVE A FINE BUNCH OF ITS BERRIES.

Fig. 10—This is our only species of the Pokeweed family (*Phytolaccaceae*) in eastern United States; but it is a very striking one, and its crimson juice is used to some extent in the arts.

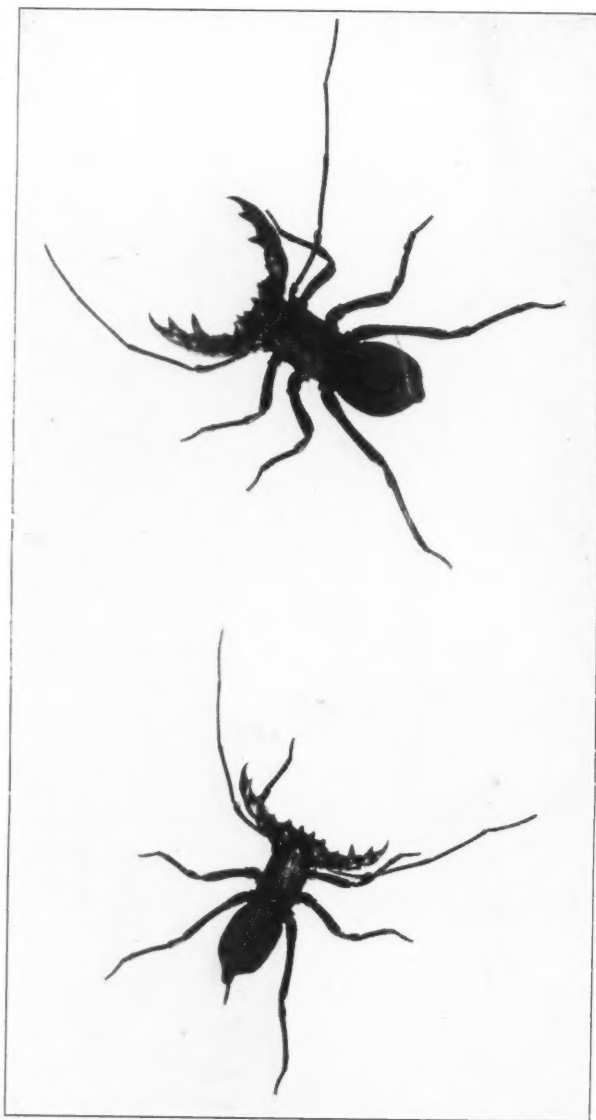
varied in kind, and the different genera and species are found all over the world. In structure and habits they approach some groups of insects; though should we trace them in another direction, they approach the crustaceans. We are all familiar with the common and

entirely harmless "thousand leg" that finds its way into houses (*Scutigera*), a gentle, a fragile creature that is seen to run of an evening close to the wall, sometimes up the latter to the ceiling. A mere touch is sufficient to sever its legs or delicate antennæ from its body, and the weight of a finger enough to crush it entirely. Yet there are people who are as much alarmed by the presence of one of these utterly harmless little creatures as by the coming in of a full-grown rattle-snake.

Some of our "thousand legs" are positively handsome animals, and during the summer it is not difficult to find several species of them under logs and stones in the woods. Two kinds have a cylindrical form, with a great many pairs of soft little legs that they move, in walking, in an alternate fashion in a manner of waves. One of these species is much larger than the other, while both have a flinty shell to the body and curl up when handled (*Iulus*). Thousand-legs of all kinds have been grouped into a class called the *Myriapoda*; a single specimen is referred to as a myriapod. One of the groups of these myriapods has been named the *Chilopoda*, and it has been created to contain the more conspicuous collection of forms very generally known as *Centipedes*. These also have segmented bodies, with a pair of legs attached to each segment. In our part of the country these centipedes are small and quite harmless, while in the tropics the species are very much larger and, in some instances, dangerously venomous. Most of them belong to the genus *Scolopendra*, one species of which, in South America, fully a foot long and greatly dreaded by the people, as it well deserves to be. In Europe, too, they have an electric scolopendra which is said to be luminous in the dark; while here in the United States we have but one small species (*Scolopendra viridis*), which is found in Florida and for some distance

northward. One specimen of this, captured by Mr. Wood at Auburndale, Florida, was received alive by the writer, who succeeded in making a photograph of it; this is reproduced in Figure 9, where the centipede is viewed from above. It is a very unusual cut, and probably for the first time gives the relative sizes of the centipede and the whip-tail scorpion. An authority at hand says that "Centipedes, or 'Hundred-Legs,' have

their segments flattened, and covered with a leathery skin, and have one pair of legs on each segment, the posterior pair being directed backwards and elongated so as to resemble a couple of jointed tails. Their antennæ have not less than fourteen and rarely more than forty joints, while the body segments do not usually exceed twenty. The organs of the mouth are masticatory, and are admirably adapted to the carnivorous habits of the centipede. It feeds principally on insects, seizing them with its powerful prehensile organs, and injecting at the same time its venom into the wound. The bite of the larger forms, as *Scolopendra morsitans*, occurring in tropical countries, is exceedingly painful, and is described by those who have suffered from it as 'similar to what might be produced by contact with a red hot iron,' giving rise to swelling, throbbing pains and febrile symptoms. These, however, yield readily to an application of ammonia. Centipedes seldom exceed a foot in length. They are exceedingly active in pursuit of their prey, insinuating their many-jointed and flattened bodies under stones, beneath the bark of trees, and wherever insects usually lurk."



WHIP-TAILED SCORPIONS MAY BE RECKONED AMONG THE MOST INTERESTING OF THE ARACHNID FORMS IN OUR FAUNA. THE SPECIMENS SHOWN IN THE ACCOMPANYING CUTS WERE COLLECTED BY MR. NELSON R. WOOD, OF THE UNITED STATES NATIONAL MUSEUM, AND PRESENTED ALIVE TO THE WRITER.

Fig. 11—These cuts are reproductions of photographs from life, and show two angry Whip-tailed scorpions, with their "tails" erect, and their claws thrown widely apart. This thelyphonid is known as *Thelyphonus giganteus*.

In the same locality where the centipede shown in Figure 9 was found, Mr. Wood came across several specimens of the famous Whip-scorpions, one of the common names of which, among a dozen others, is vinegerone. Three illustrations of this curious creature

are shown in Figures 9 and 11, the larger one, in either cut, being the same specimen. Seven of the specimens received by me were alive upon their arrival and in fine condition. They were consigned to a large fish-globe, wherein was placed a quantity of black earth, some small pieces of pine-bark, fine grass, moss, and dead leaves, with a shallow pool of clear water. Three of the largest of these "scorpions" lived in this globe for over two months, during which time I had ample opportunity to study their habits under fairly natural conditions. As there were various small insects in the material placed so abundantly in the jar, it is quite likely that they furnished food for my captives, as far as they would go.

As a rule, entomologists classify these remarkable forms in an order, the *Pedipalpida*, the family being the *Thelyphoridae*—a group created to contain all the tailed whip-scorpions known to science. Further than this it will not be necessary to enter upon their relationship. In this country, species of whip-scorpions range from the Atlantic States to those of the Pacific, but only in the tropical areas of this region.

It is not difficult to appreciate why the name whip-scorpion was bestowed upon them, as they support, at the middle point of the abdomen behind, a long, jointed, and very slender appendage which certainly has a very tail-like appearance. This "tail" they have the power of lashing about, and also of holding erect in a rigid position. For this reason it does not show well in the accompanying cuts, which are from life by the writer, and taken when the specimens were very excited and angry; and when this is the case, the tail is almost invariably held at right angles to the body.

As in the case of all spiders and scorpions, this relative of theirs possesses four pairs of legs, and a pair of

formidable-looking *pedipalps*, each *palpus* being a six-jointed appendage, the distal joint of which is a true claw. With these claws a whip-scorpion captures and crushes its prey, which, as stated above, consists of various kinds of insects. When angry, these palpi are thrown widely apart, which gives this harmless creature a very ferocious appearance, and doubtless is often responsible for saving its life. It also possesses the power of curling these "claws" inwards, in such a manner as to have them entirely out of the way when it desires to run or otherwise move about. (See cuts.) As to the other legs, the front pair is modified to become slender, jointed ones, having the function of sensitive feelers, while the three remaining pairs are in their nature entirely locomotory. Note, too, that the thorax and abdomen of these whip-scorpions are quite distinct, the lungs, of which there are two pair, open on the hinder

edge of the second and third segments of the latter.

When irritated or disturbed, one of these "scorpions" discharges a minute quantity of invisible fluid which possesses a pungent odor, and which at once reminds one of the scent of vinegar—hence it has received the name of vinegerone. Locally, in the South, it is also known by the name of "Grampus," and it is greatly feared by those who are



IN THE LAST ISSUE OF *American Forestry* (SEPTEMBER, 1918) AN ACCOUNT WAS GIVEN OF SOLOMON'S SEAL. IN IT THE BERRIES WERE REFERRED TO BUT NOT FIGURED. HERE THEY ARE, AS WELL AS A PART OF THE ROOTSTOCK.

Fig. 12—In rare instances, the first of the series of berries or fruit on the stem of this plant may be in threes instead of in pairs; the former arrangement is here shown in the first two groups, and when ripe they are blue or black. *Polygonatum biflorum* belongs to the Lily family.

ignorant of its habits and structure—the negroes standing in particular dread of it. However, naturalists have long known that it is not venomous, and does not even possess a poison-gland of any description. Our single species may attain a length of four or five inches, and is now known as *Mastigoproctus giganteus*. Its nearest relatives are the Micro-Whip-Scorpions (*Microthelyphoridae*), species of which have a caudal whip, quite similar to the one possessed by their "gigantic" relatives.

BACK UP OUR FIGHTING FORESTERS—BUY A LIBERTY BOND!

QUEBEC BUSY PLANTING SPRUCE AND PINE—A TRIP TO THE NURSERIES

FOLLOWING the close of the formal proceedings of the quarterly meeting of the Newsprint Service Bureau held in Montreal August 20, a party of visiting members and others were taken on a motor-car trip to Berthier and Grand Mere, Quebec, to inspect the forest nurseries maintained in the former place by the Provincial Government of Quebec and in the latter by the Laurentide Company, Limited.

Included in the party were Mr. George M. Knowlton, of Knowlton Brothers, Watertown, New York, dean of American paper makers, whose active connection with the industry covers a period of sixty consecutive years; Mr. E. B. Sterling, West End Paper Company, Carthage, New York; Prof. C. T. Hamill, New York State College of Forestry, Syracuse, New York; Mr. R. O. Sweezy, consulting engineer and forestry expert, Montreal; Dr. J. S. Bates, Canadian Forest Products Laboratory, Montreal; Mr. Ellwood Wilson, forestry expert of the Laurentide Company, Limited; Mr. R. S. Kellogg, secretary Newsprint Service Bureau, New York; Mr. A. L. Dawe, secretary Canadian Pulp and Paper Association, Montreal, and others.

Arriving at Berthier, two hours were spent in going over the nurseries and plantation under the guidance of Mr. G. C. Piche, chief forester of Quebec. The grounds cover more than twelve acres in extent and are soon to be considerably enlarged. They contain trees in various stages of development, from seedlings of less than a year's growth to some standing timber of a very fair size and comprise a great number of varieties. Pine and spruce specimens, however, predominate, experimental work in the production of pulp woods being the strong feature of the nurseries. Mr. Piche is producing upwards of 2,000,000 seedlings a year and has orders for the coming year for 500,000 replants for the Laurentide Company and 1,500,000 for the Riordon Pulp and Paper Company. He expects soon to be producing upwards of 5,000,000 seedlings a year, when he figures that the nurseries will be on a self-sustaining basis. Not the least interesting

exhibit was that comprising two acres of natural re-growth of spruce and pine containing a large number of young trees of less than nine years' growth averaging about eleven feet in height, some of them reaching a growth of twenty feet. In the plantation are many trees of various ages which are all duly ticketed and numbered and are subjected to constant observation and an accurate system of record-keeping which, in time, will result in the accumulation of a great deal of valuable data respecting growth, production, climatic influence, etc. Mr. Piche conducts a school for forestry students at the nurseries two months in each year, where young men come for practical instruction in forestry. He reports that there is an increasing interest in the science among the youth of Quebec.

The visitors were most favorably impressed by all that they saw and left with expressions of admiration for the work being carried on under the direction of the Quebec Provincial Government, which they thought might well be emulated by other governments.

At Grand'Mere the visitors were introduced to the reforestation work of the Laurentide Company by Mr. Ellwood Wilson, the company's chief forester. They were again greatly surprised and not a little pleased over the extent and the seriousness with which this work is being carried on. In their nurseries the company has some 750,000 spruce and pine replants of from one to three years' growth and about 250,000 seedlings just beginning to make their appearance. Everything is carried out in the most scientific manner, special attention being given to the preparation of the soil, to its drainage and the watering and care of the plants.

The company is also engaged in some quite extensive reclamation work in some nearby swamp lands by which they hope to obtain an additional large tract for reafforestation. The nurseries and swamp lands are located within six miles of the company's mills and are easily accessible thereto.

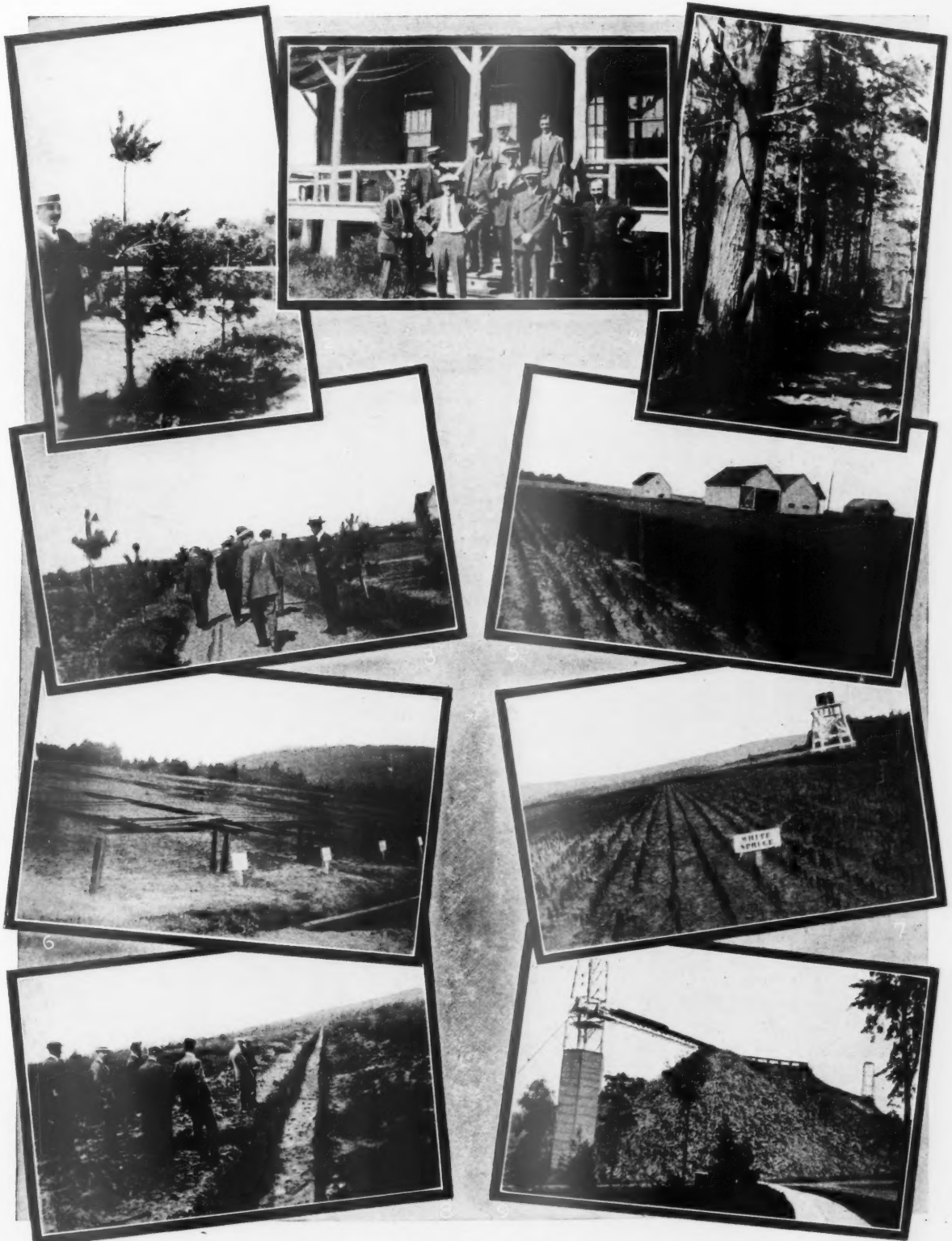
LUMBERMAN, SAVE YOUR CHIPS

THEY are going to hew close to the line in the timber forests of California, henceforth, but they are not going to let the chips fall where they may. The importance of the conservation of timber for construction purposes in the United States war for freedom has brought about a movement in the western lumber industry, which has for its object the saving of the chips.

Timber experts sent out by the federal government are teaching real conservation to western saw mill operators. One of them, at least, is declared to have had palpitation of the heart when he saw several hundred thousand feet of high grade lumber converted into chips in one of the forests of southern California.

This expert proceeded to unburden his mind to the timber owner declaring that in the eastern and southern states a tract of lumber that would average 10,000 feet to the acre, was considered a good stand. In this particular case, he found single red wood stumps in Humboldt County containing 10,000 feet of lumber, the quantity of stumps containing from 2,000 to 5,000 feet.

Another thing to which these experts are calling the attention of saw mill owners, is the great undercut, or the waste that comes from cutting down the tree. Instead of the old fashioned ax which produced the chips that fell where they might, federal experts are recommending the use of saws of the cross cut variety.



SNAPSHOTS OF THE LAURENTIDE OPERATIONS AT BERTHIER

1—At the Forestry Headquarters, Berthier, Quebec. 2—Rapid growing White Pine of which Forester Piche is justly proud. 3—Going through the Nursery at Berthier. 4—View in a permanent sample plot at Berthier. 5—A section of Forester Wilson's nursery and a few of the buildings. 6—Seedbeds. 7—Thriving young White Spruce. 8—Draining a swamp preparatory to forest planting. 9—Part of a pile of 120,000 ends of pulpwood at Grand'Mere.

THE LIBERTY-OIL PLANT

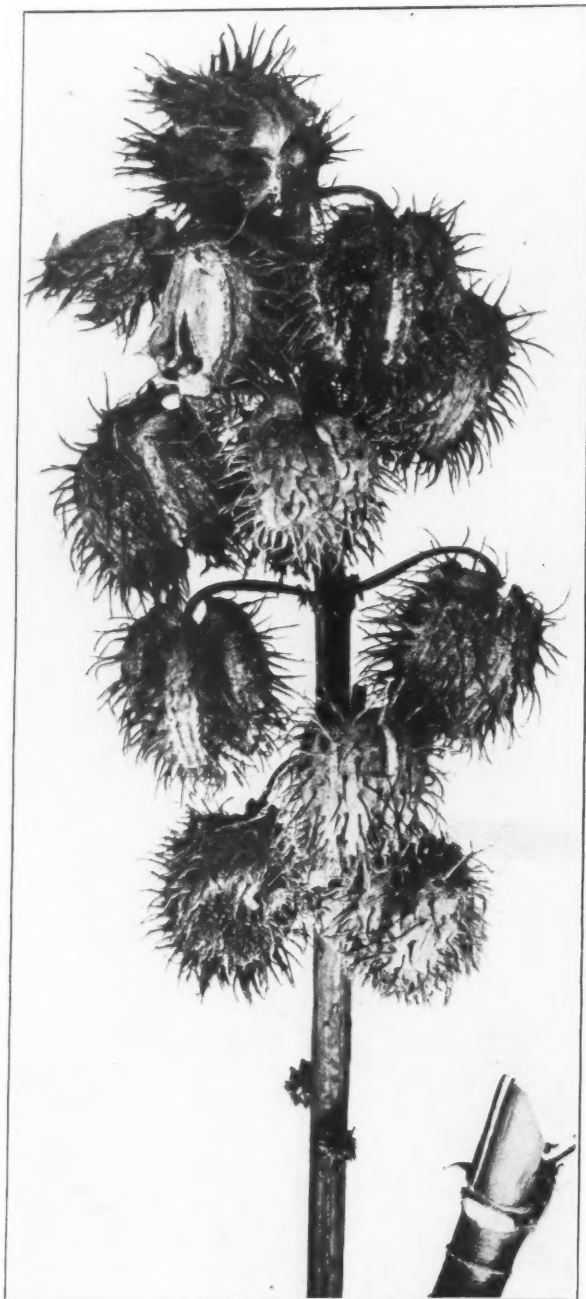
BY ROBERT SPARKS WALKER

THE castor-oil plant has during the last two years had bestowed on it a new name—a name of which anything with real life might well be proud. Americans have been growing it for decades as an ornamental plant and it well deserves a place on every lawn where the climate suits it. But down in the State of Florida and in other Southern localities of the United States it does best. In some sections of the United States where freezes occur the castor bean plant is an annual, but down in Florida it is a perennial and makes a good sized tree. Its seeds are beautiful things with wonderful markings and they are filled chuck full of the kind of oil that makes airplanes work to perfection. So our Government has contracted with growers in Florida for the oil from thousands of acres of castor beans or the new "Liberty-Oil" plant. (Hats off to the name!) The "Liberty-Oil" plant is playing an important part in the winning of the war for Freedom, Democracy and Christianity, for the entire world. For many years Floridians have been growing castor beans as a shade plant for the poultry yard, to temper the heat from a blazing sun, but now it is being grown that the Allies may make it so hot for the destroyers of human souls, that the world will never again be threatened with this demon of militarism. The new "Liberty-Oil" plant will play such an important part in the winning of the present war that the Huns will doubtless wish it was numbered among the extinct plants of the world.

The following interesting facts are taken from a report on "Castor Beans," by W. W. Stockberger, Physiologist in Charge of Drug and Poisonous Plant Investigations of the United States Department of Agriculture:

The castor-oil plant or Palma Christi (*Ricinus communis* L.) is a member of the family Euphorbiaceae, and is not a legume or true bean as some suppose. The seeds of this plant, called "castor beans" or "mole beans" yield the castor oil of commerce. About one hundred years ago small local crops of castor beans were produced in Virginia, North Carolina, South Carolina, Georgia and other Southern States, and later in Kentucky, Texas and California. Between 1860 and 1900 the castor bean was an important crop in certain sections of Oklahoma, Kansas, Missouri and Illinois, but during recent years its culture has been practically abandoned. The decline of the industry in the United States is attributed to the growing importance of other crops and the reduction in prices brought about by heavy importations of castor beans from India.

For the commercial production of castor beans, the warm climate and longer growing season of the more southern states is necessary. If planted much further north than St. Louis, Missouri, or Washington, D. C., the crop is very likely to be caught by frost. In general, any fertile soil which produces good crops of cotton or corn is suitable for castor beans, but a very fertile soil favors the growth of the plant



A SPIKE OF THE CASTOR-OIL PLANT

This shows a typical spike of the "Liberty-oil" plant, with ripe pods, each containing three beans.

at the expense of seed production and early maturity. The land is prepared in much the same manner as for cotton or corn: that is, plowed, disked and harrowed level before planting, which may be done by hand or with a corn planter with especially prepared plates. The seed should be planted early in the spring as soon as the soil is warm but still moderately moist. The time of planting varies according to locality, but in general corresponds to that of cotton. A good time for planting in central Oklahoma would be about the first of May, and correspondingly earlier in localities to the south. In central peninsular Florida, conditions will probably be suitable any time after the middle of March.

The depth of planting varies according to the time, soil and moisture. In the extreme South the beans are preferably planted about 1 inch deep, further north from 1 to 2 inches. The spacing of the rows and the plants in the rows should vary according to the variety of castor bean planted and the nature of the soil. The varieties having small seeds are usually planted more closely than those having large seeds. Towards the north, the rows are usually made four feet apart, and the plants spaced three feet apart in the row. Further south the rows should usually be made about 6 to 8 feet apart. On very light land the hills may be 4 feet apart in the row; on heavier land 6 or 8 feet apart. As a general rule 3 seeds are planted to the hill, and not less than 2 should be planted. When the plants are from 4 to 6 inches tall, the weaker ones should be removed, leaving one plant in a hill. In the extreme South where frost does not often kill the castor bean plant, the beans are sometimes planted in hills 5 x 5 feet, and as the plants develop, they are thinned to stand 10 x 10 feet apart. With the closer planting, it is well to leave a space of about 8 feet between every sixth and seventh row, to permit the passage of a wagon when

the beans are harvested. In planting for commercial purposes a distinction should be made between the ornamental and the oil-producing varieties. The seeds of the latter are small to medium in size, usually about 2-5 to 3-5 inches long and 1-4 to 2-5 inches broad, oval in shape, smooth and shining, and of a grey ground color, irregularly marked with brown. The most desirable beans run from 1,500 to 2,500 to the pound, or about 69,000 to 115,000 per bushel of 46 pounds. The number of acres a bushel of beans will plant depends upon the size of the bean and the method of planting.

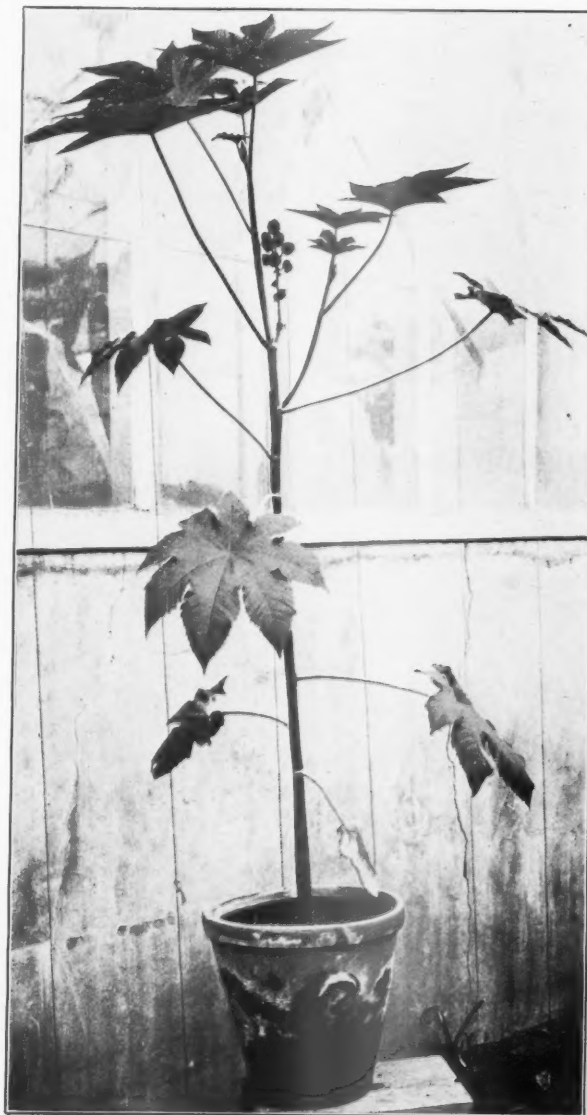
The crop is cultivated similar to corn, until the plants are large enough to shade the ground. In case the field becomes foul with weeds and grass some hoeing may be necessary, but practically all the cultivation required can be done with a horse-drawn weeder. Cultivation should not continue after the first bloom spikes appear. If the plants do not thrive, some fertilizer consisting chiefly of ammoniates may be supplied.

The yield will depend much upon cultural conditions, upon the season, and the care exercised in harvesting and thrashing the seeds. Yields of 30 to 40 bushels per acre have been reported from Florida, South Carolina, Georgia, Texas and California. In the Middle West yields of 15 to 25 bushels per acre have been reported under favorable conditions. Much smaller yields will, of course, result if conditions are unfavorable.

Until recently the farm price for castor beans has been not far from \$1.00 per bushel. The increased demand for castor oil due to war conditions has caused

the price of the beans to advance rapidly, and it is probable that high price for castor beans will prevail until the end of the war. The normal market requirement in the United States for castor beans is about 1,000,000 bushels annually, but until present conditions change materially, a larger quantity will be needed.

In the United States castor beans are used in quantity



THE "LIBERTY-OIL" PLANT

This shows a young plant, with small fruiting spike near the top.

only by manufacturers of castor oil. The principal castor-oil mills are located at Jersey City, New Jersey, Buffalo, New York, Toledo, Ohio, and Grand Rapids, Michigan. In general the equipment and operation of a castor-oil mill resembles that of a cottonseed oil mill or linseed-oil mill, but special and expensive equipment is necessary for the proper extraction of the oil from castor beans. The best grade of oil is obtained from the beans by hydraulic pressure. An additional quantity of oil of lower grade is obtained by treating the press cake with naphtha or other volatile solvent. The pomace resulting from the second extraction is used as a fertilizer for tobacco, corn and other crops, but because of a poisonous principle cannot be used for cattle feeding unless specially treated.

"SAVE PAPER!"

THE American Forestry Association earnestly urges its members to comply with the request of the War Industries Board and economize in the use of all paper, as it is only by individual effort and co-operation that the supply of paper for essential purposes may be maintained.

The following appeal has been sent out by the Board:

DON'T WASTE PAPER PAPER IS ESSENTIAL: It has been placed on the priority list only on the express condition that all wastes be eliminated and every economy be practiced. In doing this the Government will use its best efforts to provide sufficient paper for strictly needful purposes, but nothing more. Every distributor converter or user of paper is hereby notified that the continuance of his supply is dependent strictly upon his observance of the rulings of the War Industries Board, one of which is that paper must not be wasted. Failure to comply with this requirement will lead to the withdrawal of any or all priority privileges, without which the supply cannot be maintained.

SEVEN REASONS WHY PAPER MUST NOT BE WASTED.

1. The Government's requirements for all kinds of paper are increasing rapidly and must be supplied.
2. Paper requires a large amount of fuel which is essential for war purposes. A pound of paper wasted represents from one to three pounds of coal wasted.
3. Paper contains valuable chemicals necessary for war purposes. Economy in the use of paper will release a large quantity of these materials for making ammunition or poisonous gases.
4. Paper making requires both labor and capital, both of which are needed in war service.
5. Paper making requires transportation space. Economy in the use of paper will release thousands of freight cars for war purposes.
6. Greater care in the purchase and use of paper will save money.
7. Your savings will help finance the war. Strictest economy in the use of paper will prevent shortage.

War Industries Board,
B. M. Baruch, Chairman,
By E. O. Merchant.

Owing to the heavy outlay required for the necessary machinery and the high cost of manufacture on a small scale, it has not been found profitable for the growers of castor beans to undertake the extraction of the oil.

The castor-oil plant is not known to be poisonous, and although the leaves are not relished by farm animals they are said to be used as fodder for cattle in India. Castor beans, however, contain a poisonous principle, and though harmless when handled, may cause serious, if not fatal effects, when eaten, especially in the case of small children. Care should be taken to prevent these beans from being accidentally mixed with the grain fed to animals, since many cases have been reported in which the death of horses has been due to eating feed in which they have become mixed.

OLIVES AND WALNUTS—THE FOOD TREES OF FRANCE

THE walnut and olive trees of France stand as an example of what a crop of trees may mean to a nation hard at war. H. R. Isherwood, head of the Trade Extension Bureau of the National Lumber Manufacturers' Association, cited recent reports on the olive oil and walnut crops in that country, as an encouraging factor in the food situation of the nation which is bearing the heaviest part in the struggle for world democracy.

Olive oil is one of the staple fats of French diet, taking the place of animal fats, which though not as scarce in France as in Germany, are still too scanty for comfort. Walnuts, of course, are the richest of foods.

Mr. Isherwood dwelt at length upon the benefit to a country hard pressed for food which results from large crops of the fruitage of these trees. The olive oil crop for last year was one of the largest for a generation. In spite of the shortage of labor, it was saved. The French Government closed the schools, and sent boys and girls to the groves. The walnut crop also was the largest in years.

Walnuts are planted at wide intervals all through the fields of central France, and the ground farmed under them as though the trees were not there at all. Olive orchards are sometimes cultivated, more often they serve as pastures, and a great many of them are on ground that would be useful for little else if the trees were cut down. Doubtless there are thousands of olive trees in France that saw Napoleon set out on his first Italian campaign.

HELP THE GOVERNMENT SAVE PAPER BY USING ONLY WHAT YOU REALLY NEED. EACH POUND OF PAPER REPRESENTS SEVEN POUNDS OF FUEL AND FUEL IS NEEDED TO BURN OUT PRUSSIANISM.

NIGHT-HAWKS AND WHIP-POOR-WILLS

Family Caprimulgidae

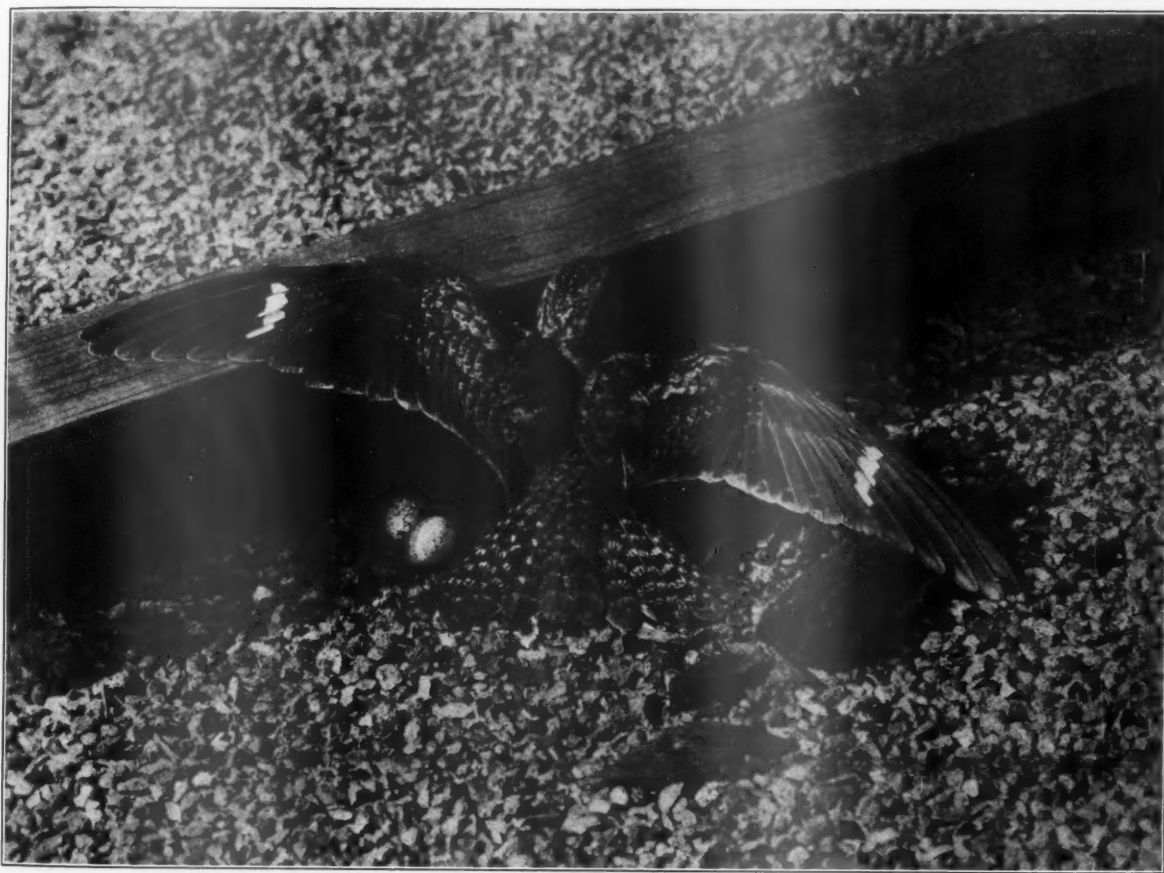
BY A. A. ALLEN, PH.D.

ASSISTANT PROFESSOR OF ORNITHOLOGY, CORNELL UNIVERSITY

TO try to understand every impression that is made upon the senses is a sign of intelligence. The dog that howls at the moon because he does not understand it, is more intelligent than the dog that takes the moon for granted. We humans know that every effect should have a cause and, having sensed the effect, are quick to search the cause. So insistent are we if we do not discover it, that we invent one to our own satisfac-

tion as is desired, the explanation took hold. It was too dark to see the insects that the goats were disturbing, but it was light enough to see that the birds were following the goats. So, even today, the nightjars and their relatives the night-hawks and whip-poor-wills, must bear the family appellation of goat-suckers and bear the ill-will of the non-observant world.

Nor is it from this superstition alone that these strange



Courtesy of "Bird Lore"

A MODERN HOME FOR A NIGHT-HAWK

Night-hawks have adopted the flat topped, gravel-covered roofs of our large cities as quite suited to their needs. This bird is fluttering from its eggs on the roof of the Bell Telephone Building in Philadelphia. Note the white bar on the wing that distinguishes it from the whip-poor-will.

tion. Later on when our mistake has been rectified, it may cling to the world for generations as a rumor or a superstition.

A good many generations have passed since a group of nightjars were disporting themselves one evening on a European pasture and some one inquired what they were doing. It must have been a disgruntled herdsman that offered the explanation that they were sucking the milk from the goats but, since goats never give as much

but useful birds have come into disrepute. The idea of a bird waiting until dark before it goes about its work is enough to prejudice most minds against it, and when it is also responsible for some of the most weird sounds in all nature, even the most intelligent will lend a willing ear to almost any fiction about it. When one is alone in the forest and a whip-poor-will breaks the silence with its strange liquid notes, one can easily understand how the Indians came to believe that misfor-

tune was imminent when one called near his tepee. And when a tenderfoot has strayed from camp after dark in the southwestern desert and a chorus of poor-wills make the rocks resound, he can easily imagine that there are evil spirits all about him.

There are over 100 species in the goat-sucker family, found all over the world except in Arctic and Antarctic regions and a few of the eastern Pacific Islands. About fifty are found in the New World, the majority of which



WHERE RACE SUICIDE IS POSSIBLE

The tropical whip-poor-wills lay but a single egg. This is the home of the white-necked parakeet in a thicket of bamboo, the leaves of which cover the ground.

live in the tropics, so that only six reach North America. Four of these are rather well known birds, the night-hawk, the whip-poor-will, the chuck-wills-widow and the poor-will. They are all small birds, but their long wings and tails make them appear much larger than they really are. The night-hawk, for example, whose body is smaller than that of a robin, appears, on the wing, about the size of a sparrow hawk. A few of the tropical woodland nightjars are considerably larger, being about the size of short-eared owls, which, indeed, they somewhat resemble. Nor is it any wonder when we stop to consider the relationship of the goat-suckers to the owls.

It is not only in color and nocturnal habits that the goat-suckers resemble the owls, but structurally as well. So much so in fact, that modern systematists remove the owls from the raptorial birds where they have rested for so long, and put them close to the goat-suckers. The chief difference between the two groups has arisen because of their differences in food habits. The owls are largely carnivorous and their bills and feet have been modified for catching mice. The goat-suckers, on the other hand, feed chiefly on flying insects and have little use for their bills and feet which, therefore, have de-

generated while their mouths have developed to an extreme size. In all but the night-hawks, the corners of the mouth are provided with long bristles, making them most efficient scoop nets. The seven species of woodland nightjars (*Nyctibius*), however, have much heavier bills which are strongly hooked, and they likewise have better developed toes. They differ also in assuming an erect owl-like position when at rest and in having the eyes more nearly directed forward. Indeed, in many respects, they seem intermediate between the rest of the goat-suckers and the owls. The night-hawks and whip-poor-wills, when at rest, always perch lengthwise of the branch or log because of the weakness of their feet. This, together with their eyes being on the sides of the head, destroys their similarity to the owls in spite of the fact that their plumage is quite as soft, their colors similarly mottled, and their eyes much larger than in ordinary birds.

In nesting habits, the goat-suckers are at the bottom of the scale. They build no nest whatever, but lay their eggs on the bare ground without even a depression to keep them from rolling. The North American species normally lay two eggs, but the tropical species, only one. The eggs are whitish or cream-colored marked with darker gray and purplish, those of the night-hawk being quite inconspicuous on the gravel where they are



HAS A RELATIVE IN TEXAS

A subspecies of this parakeet (*Nyctidronus albigollis*) is found as far North as Texas. This bird was photographed on its egg at the base of a bamboo sprout in a thicket—Its long tail is not always held so high. It was difficult to see even at a distance of six feet because of its protective coloration.

usually laid, but those of other species being quite the reverse. The young are hatched blind and helpless, but are soon covered with long grayish or brownish down not very different from the down of young owls.

The most abundant and widespread of the goat-suckers is the night-hawk which is found in summer in one or

another of its sub-species from Florida to Alaska. In winter the night-hawk retires to South America, traveling in scattered flocks. Sometimes they just skim the ground or large bodies of water and at a distance look remarkably like black terns. Again they fly high over head. In climbing the Andes of Colombia in October at an altitude of 12,000 feet, I saw flocks of night-hawks flying several thousand feet higher, crossing snow-capped ridges and making for the plains beyond. The birds that nest in Alaska have a long way to travel, for even should they stop in the Bahamas, it would mean 6,000 miles each way, while, if they continued to central Argentina, as do many, it would mean an annual pilgrimage covering at least 18,000 miles.

Night-hawks are usually birds of the pasture or prairie country and are seldom found in heavily wooded districts unless it be in clearings. They spend the day perched lengthwise on a rock or post or branch of a tree and will frequently permit of a close approach. At dusk they begin hawking about after insects and consume great quantities of gnats, mosquitoes and other flying insects. Five hundred mosquitoes were found in the stomach of one night-hawk, and 1,800 winged ants in another. Occasionally they pursue insects on bare ground and are sometimes seen at dusk along country roads, flitting from spot to spot capturing beetles and

known as the "bull-bat." Its erratic flight made it a difficult mark for the gunners and it was considered legitimate sport to go out at dusk and shoot them as they darted back and forth over the pastures after insects. Sometimes they were used as food. For a time they became extremely scarce and in some localities were threatened with extinction but, now that their value has come to be realized, and they are rigidly protected by both State and Federal laws, the custom of shooting



BE IT EVER SO HUMBLE

None of the night-hawks or whip-poor-wills build nests. They lay their eggs on the ground without even a depression to keep them from rolling. One of this whip-poor-will's eggs has hatched and the young is seen to be covered with long brownish down.

them has gone out of vogue and they are increasing in number.

Of recent years, the night-hawks have been attracted to large cities where the flat-topped buildings with their gravel roofs are not very different from the stony fields where the birds ordinarily nest. They have little competition for the hosts of flying things that are attracted by the lights and are steadily increasing. They are often seen perched on chimneys or gables during the day and darting over head at dusk uttering their sharp call of "peerd—peerd."

During the breeding season they can often be seen to dive toward the earth from a considerable height, catching themselves with an upward turn just before they strike the house tops, the rush of the air through their wings causing a roaring sound like that produced by blowing over the bung-hole of a barrel.

The night-hawk and the whip-poor-will are quite similar in appearance, both being beautifully mottled with gray and brown, somewhat lighter below with conspicuous white patches on the throats and white in the tails. The night-hawk is easily distinguished by a white bar across the wing which is very conspicuous during flight. The two birds, however, are not ordinarily



Photograph by A. D. DuBois

RELATED TO THE OWLS

A whip-poor-will brooding its young among the oak leaves on the forest floor. Modern systematists remove the owls from the raptorial birds and put them near the goat suckers. Here there is a suggestive resemblance.

grasshoppers. Sixty grasshoppers were found in the stomach of one bird. They ordinarily feed only at dusk or at night, but during the nesting season or on their migrations, they are sometimes seen darting about high over head even on bright days.

In former years, the night-hawk was shot for sport in large numbers throughout the South where it was

found in the same places for their habits are very different.

The whip-poor-will is a bird of the woodlands, spending the day on the ground under the trees and coming out into clearings or along the forest borders at night to feed. At such times it sometimes ventures close to door-yards and startles the unsuspecting householders with its loud liquid notes—"whip-poor-will—whip-poor-will—whip-poor-will." These are given with an accent that does not tend to make one sorry for poor Will, but rather to feel that he quite deserves his misfortune.

The whip-poor-wills feed upon larger insects than do the night-hawks, being particularly fond of the large night-flying moths, the larvae of which are very destructive to the foliage of trees.

Whip-poor-wills are found in summer from Florida to Nova Scotia as far west as the Plains. They leave with the night-hawks for the south the last of September or the first of October, but they do not go far, stopping in Central America and West Indies.

In the Gulf States and occasionally as far north as Maryland and Ohio, occurs the chuck-wills-widow, which is a larger edition of the whip-poor-will. In habits they are not very different except that they have been seen occasionally to pursue and swallow such small birds as warblers and sparrows, and humming-birds have been taken from their stomachs. Their call is similar to that of the whip-poor-will, but is louder and more slowly uttered, and each phrase has an additional syllable as suggested by the name.

In Western North America from Nebraska to the Cascades and as far north as British Colombia, occurs the poor-will, a small sized whip-poor-will, abbreviated

in actual length as well as in name and call. To those who have an ear attuned to nature, its call is said to be soft and soothing, but to others it is said to be diabolical and suggestive of evil spirit. Such is the nature of man.

In southern Texas is found a whip-poor-will known as Merrills parauque, the name being derived from its call which is quite different from those already described, being a rather hoarse "pa-rau'-que." It represents a group that is quite common through tropical America and which differs somewhat in feeding habits from the other members in that it catches most of its insects on the ground along roads or bare spaces among the mesquites.

Like the rest of the goat-suckers it is very protectively colored and difficult to see when at rest on the ground.

The Texan night-hawk, which is found from Texas to Southern California, differs from the common night-hawk in having the white bars near the tip of its wings and in call which Vernon Bailey describes as "a low rapid—chuck, chuck, chuck, followed by a soft pur'r'r'r'r'r'r'.



Photograph by A. D. DuBois

A HAWK THAT ISN'T A HAWK

A western night-hawk incubating its eggs on a lichen covered rock. The night-hawk is one of the maligned group of goatsuckers and is one of the most beneficial insect destroying birds that we have. Note its protective coloration.

The whole family of goat-suckers is without exception one of the most beneficial that we have. An occasional small bird swallowed by the chuck-wills-widow is the only exception to a diet that is almost exclusively insectivorous. They capture the night flying insects which have few other bird enemies and some of which are the most destructive that we have. Their wierd calls and nocturnal habits will undoubtedly continue to prejudice unthinking people against them and we should, therefore, do everything in our power to disseminate the truth and cultivate a love and respect for some of the strangest, most interesting and most beneficial birds that we have.

Save fruit pits and nut shells. Two hundred peach stones or seven pounds of nut shells will furnish enough carbon for a gas mask and save the life of an American soldier.

"BALDY DAN" IN FRANCE

BY LIEUT. SHELBY M. SAUNDERS

COMPANY E, SIXTH BATTALION, TWENTIETH ENGINEERS (FOREST)

WHEN pine was "King" in Michigan a familiar figure in the camps north of the Saginaw Bay country was "Baldy Dan" McDonald. He had the unique reputation of being the best lumberjack in that section of the state. There was nothing that he could not do in the woods. When it came to sawing "Baldy" could outwear a dozen ordinary men, not because he "rode" the saw, but simply because he was a wizard at his work. He could chop, swamp, top load, deck load and handle a peavy, and if there was anything in the woods he could not do it was simply because no one had ever heard tell of it before.

of the glory that is due them. When men learn what has been achieved by the Forestry Regiments they will ponder and remember, and they will give to these warriors of the forest all of the credit that is due them in helping to free the world of Prussianism.

Organized for the purpose of supplying the American Army in France with its various needs of forest products, the task in spite of being almost superhuman in the face of so many difficulties, is being accomplished with a smoothness that is astonishing. While it is true that members of the Forestry regiments do not have to share the dangers that do members of fighting units, yet they



SOME OF OUR LUMBER BOYS IN FRANCE

Organized for the purpose of supplying our army in France with the necessary forest products, our two Forestry Regiments are acquitting themselves with great credit and these are some of the boys who are helping to make them famous.

"Baldy Dan" like the mighty pine of Michigan has gone, but men of his calibre have come to take his place. It is a mighty odd statement to make, but one that is true and one that will be vouched for by every man who is in a position to know and that is, that the best loggers, the best woodsmen, the best sawmill men that America can produce are now in France. They are members of the Tenth and Twentieth Engineers, Forestry Regiments, which are making a big name for themselves in France and America and they will go down in history as having played a large part in the World War.

The Forestry Regiments are just coming in for some

are ready at any time to take their places in the front line trenches, if the need be.

Before anything could be done by America in the war, it was necessary to have lumber. There was need for it everywhere. Docks had to be built, railroads had to be constructed, hospitals, barracks and warehouses, and the many other things that an army needs had to be erected.

As soon as the Forestry Units arrived in France, they went to work. Shortly after production started and the flow of lumber from the mills began. As rapidly as possible additional battalions of Forestry troops were dis-



THE MILL

This is the American mill at the foot of the mountain, down which the logs come at a 72-degree grade for milling. Its capacity is 10,000 feet, but it does much better than this.

patched to France and in a comparatively short time, they started to send lumber where it was most needed. A steady stream of lumbermen and sawmill men of America came "over" and soon lost themselves in the forests of France. They are working in every section of the country; from east to west, and from north to south.

Trench timbers, stakes for barbed wire entanglements and fire wood for the supply of the army "over here" are some of the things they are getting out. In spite of increased production, come increased orders and it is a race, at breakneck speed, with men working in shifts by day and night to meet the demands of the growing army of Democracy.

The men of the Forestry regiments are a mighty big factor in the war. They are doing their bit, and it is a big bit. They

work hard, ten hours a day and they are among the huskiest men in the A. E. F. They are as hard as nails and are always ready for any emergency.

On account of the hard work these men are doing, they have been granted an increase in rations of twenty-five per cent over that allowed the men in the other units "over here." They need it, these men of the forests, for they are fighting a battle every day; a battle of production and the way the reports are coming in from every camp and operation, indicates that the For-

estry Regiments are out to bury the Kaiser beneath a mountain of sawdust, "Somewhere in France."



ENOUGH TO MAKE THE KAISER FEEL "LOGGY"

These are all ready for business, and the flow of lumber from the American mills in France is not going to stop until the "I" is taken out of "Kaiser."

DONATIONS TO THE WELFARE FUND FOR LUMBERMEN AND FORESTERS IN WAR SERVICE

AMERICAN FORESTRY will publish each month the list of those making donations to this fund. Many of the donations from members of the American Forestry Association so far received were made without solicitation and were inspired by reading in the magazine that a relief and comfort fund for men of the forest regiments was being collected. Many substantial contributions are being received from the Forest Service and from lumber companies and lumbermen following requests sent to them by the Secretary of the Welfare Fund for Lumbermen and Foresters in War Service, by the lumber organizations of which they are members, and by the committees of lumbermen which had charge in various sections of the United States of securing enlistments for the forest regiments.

Contributions to the Welfare Fund to October 1, 1918, are as follows:

Previously acknowledged	\$20,428.06
Dock, Miss Mira L, Fayetteville, Pennsylvania	5.00
Kenneth, O. Ward, Candor, New York	10.00
Merkel, Hermann W., New York City, New York	5.00
Reeve, C. Mc., Minnetonka Beach, Minnesota ..	10.00

Rosemary Pine Lumber Mills, South Mansfield, Louisiana	50.00
Wesbon, Gertrude S.	5.00
Total	\$20,513.06

SHEEP ORNAMENTAL AND USEFUL

"MATCH THE PRESIDENT" was a slogan sounded during the Third Liberty Loan drive which resulted in the addition of millions of buyers to the Government bonds.

Another helpful way in which patriotic Americans can follow the lead of their Chief Executive and thereby contribute to the winning of the war, is by putting a flock of sheep to graze on their lawns, woodlands or private forests. Altogether there are hundreds of thousands of acres of excellent forage land which, like the big sloping lawn back of the White House, would furnish excellent pasturage for sheep. In addition to large private lawns there are golf courses, public parks in nearly all of our cities, college campuses and similar open spaces which should not be left lying idle in these days.

The fine flock of wool growers which for the past several months have been contentedly nibbling their way about the White House grounds, obviously happy in their peaceful historic surroundings, add not only to the quiet beauty of the landscape, but they are serving

a valuable utilitarian purpose—they are raising part of the wool which later will help to keep some soldier in France warm. The meat also which will be added to the nation's food supply by raising sheep wherever it is possible, will constitute a worth-while item in the country's war supplies.

Since the appearance of the President's flock on the White House lawn, announcement has come from a number of places throughout the country of the intention of officials or individuals to follow the President's example and put some of the woolly-backed animals to fattening in public parks or private grounds. But there are still many thousands of places where small flocks of sheep might be maintained with profit to the owner and, what is more important, with benefit to the nation.

What is apparently a minor value of sheep in these days, although it is worth considering in connection with the subject, is that they serve as animated lawn mowers. This means that they save a certain amount of man-power; and any release of workers for more essential war duties is eminently worth while. Of course,



"ANIMATED LAWN MOWERS"

These woolly-backs clean up as they go and they save man power. But it is because of their addition to the food and clothing supply of the nation that they are most prized. Thousands of lawns, public and private parks, woodlands, golf courses and similar spaces throughout the United States would do well to maintain small flocks of sheep.

lawns can go uncut, as has been the case this past summer with more than one college campus which is normal times was kept trim and neat. It would have been a patriotic as well as a picturesque sight for a flock of sheep to have gone moving back and forth between the dormitories and the classroom halls.

Not only during the days of the war but in the long

the time being, at least, the "transcendental purpose" of sheep—if there be any such *raison d'être* in their branch of the animal kingdom—must be put aside for the utilitarian service which they can perform for mankind. This is by furnishing food and clothing—and by being lawn mowers.

Before embarking in the enterprise of raising sheep individuals are advised by the animal husbandry division of the United States Department of Agriculture to seek information on the technical side of the question so that there may be no wasted effort. The division has a number of publications on the subject and has announced that it will be glad to answer any questions. The belief has been expressed, however, by officials of the Department that this raising of sheep on lawns and small parks can be of real practical value.

A recent statement by the Department says that persons who desire to raise sheep are advised to enter the industry with a view of staying for several years at least. The gross annual returns from the ewes of breeding age

may be expected to range from \$8 to \$15 a head, depending upon the percentage of lambs raised, the weight of the fleece and the value of these products. The fleece from one sheep averages five to eight pounds and is now selling for from fifty to sixty-five cents a pound. The ewes with good management will each raise a lamb.

hard reconstruction days which will follow and when there will be still a shortage of food and of material, sheep can play an important part in supplying some of the needs of the country. The individual or the official organization that buys a few sheep now and puts them to grazing on idle pasturage, whether it be front lawn, public or private park, golf links or other similar space, will find after the war that it is a profitable investment, in the matter of dollars and cents and in other ways as well.

It is impossible not to consider the sentimental value of a flock of sheep serenely grazing on a velvety carpet of grass or winding their unconcerned way through the trees of a fine grove, cleaning up the track over which they have moved. Sheep have been the subject of song and poetry. "I heard the sheep-bells ringing on the Downs," the poet sings. They have been a favorite subject for painters and have been immortalized by many of the world's greatest artists of the brush. Ever since the days of David who sang of the flocks which he tended, sheep have been held in a sort of kindly regard by man. Their submissive innocence, which is best summed up in the fine Biblical phrase, "led as a sheep to the slaughter," combined with their pastoral beauty, has always made man look upon sheep with a pleased eye.

Nevertheless, as Richard Le Gallienne so well says, "who can doubt that the farmers are right and that sheep were made to be fleeced and eaten, and for no other more transcendental purpose at all?" Certainly for



WHERE OUR WOOL COMES FROM

Sheep add to the attractiveness of any landscape. Poets have sung of them; artists have painted them. But it is because of their practical value today that people are urged to "Match the President" and go in for sheep raising on their estates as he is doing on the White House grounds.



A HISTORIC BACKGROUND

The President's flock of sheep graze benignly away over the beautiful sloping lawn of the White House, indifferent to their surroundings. Since the Nation's Chief Executive entered the "sheep business," others with spacious lawns about their homes are following his example.

The lambs at five months will weigh approximately sixty pounds and will be worth fifteen cents a pound or more. The useful life of a sheep is about six years.

The day will not come again when each family will have its own spinning wheel and weave its own clothing; but as a result of the White House precedent it is certain—and it is a good step—that hundreds of homes throughout the country will in the future have small flocks of sheep grazing on the lawns or in the woodlands about them. The benefits both to the nation and to the individual will be manifold.

CAPT. BARTELME PROMOTED

F. E. BARTELME, president of the Keith Lumber Company, of Chicago, has received the good news that his son, F. M. Bartelme, has been promoted to major in the 20th Engineers of the national army, one



MAJ. F. M. BARTELME

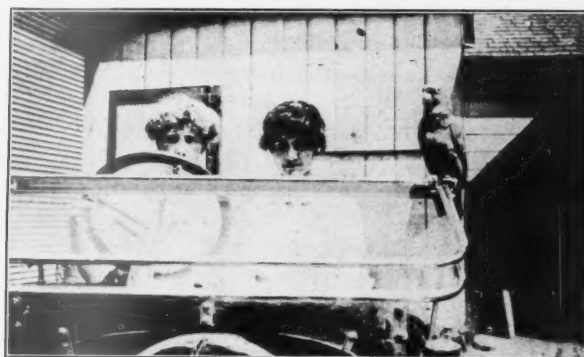
of the forestry regiments in France. Mr. Bartelme with rank of captain has been in France several months as advisory lumbering expert under Col. W. A. Mitchell. When he was chosen, last September, as advisor in lumbering to Colonel Mitchell the intention of the War Department was to rank him major then, but as he was then only 36 years old the honor could not be bestowed upon him. Since then his services in France have been so notable that the War Department evidently has found some way to waive age requirements, as 40 years is the age for conferring the rank of major.

Major Bartelme is well experienced in every branch of lumbering. Before going to France he was engaged in business in Minneapolis, Minnesota, with a branch at

Cairo, Illinois. The business is still conducted at Minneapolis with L. T. Lloyd, its secretary, in charge and the branch at Cairo in charge of C. E. Johnson, the company specializing in hardwoods. Though a young man, Major Bartelme passed through every stage of lumbering in the North from woods operations to salesmanship, which made him a well equipped man for Uncle Sam in getting out lumber supplies in France, a work that he has evidently done to the entire satisfaction of his superiors, judging from his promotion.

PARROT AN AUTOMOBILE SPEED FIEND

ALTHOUGH this picture shows the car standing still in order to allow a good picture to be taken, nevertheless the parrot on the windshield is undaunted by speed. In fact the faster the machine goes the more he enjoys it, and the louder he screeches. As the auto whirls about the streets of Stockton, California, he is in his element, and the curious pedestrians are amazed to see him perched perilously on the swaying car, al-



"CRANK 'ER UP!"

This is the parrot that loves to speed and he is impatient now to be off.

ways at his post at the top-edge of the windshield. He has the "motor-bug," and thus imitates man as he does in his speech. Other animals have been reported at various times as having the "motor-bug," but a parrot so affected is rather a novelty. Dogs take to the automobile as a duck takes to water, and seem to enjoy the outing and speed as much as their masters and mistresses. A new type of automobile dog may yet follow in line of succession to the coach dog, now becoming a rarity.

THE Mississippi Legislature has passed a bill exempting from taxation for a period of five years all wood distillation plants that may be built in the State. The purpose of the bill is to encourage the wood distillation industry in Mississippi. The measure will affect pine more than hardwoods, but there is much hardwood in the State that might be used in destructive distillation.

**SHOW YOUR PATRIOTISM BY SELLING YOUR BLACK WALNUT TIMBER—BADLY NEEDED
BY THE GOVERNMENT FOR PROPELLERS AND GUNSTOCKS**

WOOD FOR WATER AND AIR SHIPS MUST BE HAD

SINCE the War Industries Board has placed airplane material first in the priorities classification of industry necessary to win the war, employers of the big army of men at work in the fir and spruce operations of Western Washington and Western Oregon will be obliged to ask local draft boards to provide deferred classification for such men as are essential to the continued maximum operation of their plants.

Representatives of the government as well as the lumber operators themselves have been impressing upon the men the fact that those of their number who are given deferred classification on occupational grounds will be rendering a valuable service to the country by remaining at home and helping to get out the material that the government so badly needs and that is so necessary in winning the war.

It is apparent, however, that the lumber industry does not propose to ask for wholesale exemptions for its employees. Each application for exemption or for deferred classification will be presented on its individual merits. The test in each case coming before a local draft board will be whether the man is indispensable in the plant in which he is employed. Final determination of exemptions will lie, as at present, with the draft board officials.

The new law will affect thousands of men engaged in the lumbering industry, as most of the skilled employees are between the ages of 31 and 46. Were all the men of those ages taken into the army the industry would be unable to meet the government's demands for the production of airplane lumber and ship timbers.

The forests of Western Oregon and Western Washington alone have been able to produce the quantity and quality of fir and spruce necessary for airplane construction. The volume of this production has been increasing every month but further increases are necessary in the future. The needs of the government are urgent and every man necessary in getting out this material is required on the job.

At the same time fir is absolutely essential in future wood ship construction as it is the only wood that produces timbers of the lengths and strengths necessary to build the big ships required by the Emergency Fleet Corporation. The main bulk of all the wooden ship material used in the country is in the fir woods and can be produced only by the fir mills. The mills of Western Oregon and Western Washington also are furnishing the decking required for the steel ships both on the East and West Coasts.

Orders also have been placed in the Northwest for immense quantities of large and long timbers and special length planks for Eastern ship construction.

To fill all these government orders the mills of this territory have been forced to speed up their operations and any considerable loss of men, it is pointed out, will result in curtailed production of government lumber.

The lumbermen will co-operate with heads of the government and with the local draft boards in their desire to furnish the required number of men for the army without crippling the industry.

The production of sufficient quantities of spruce of the proper quality is one of the critical phases of airplane manufacture. The Forest Service is co-operating with the Signal Corps of the War Department in the West and the Navy Department in the East in speeding up spruce production. The co-operation consists in the compilation of existing estimates of stand, the location of suitable bodies from the standpoint of quality and accessibility, where advisable the collection of logging engineering data, such as costs and the best methods of exploitation, and in general recommendations of any character whatever as to means of increasing production.

The work in the West is being conducted by the District Forester at Portland, who has detailed a force of approximately 20 men, and in the East by the Office of Forest investigations by the detail of two men. These activities, which are under the general direction of the Branch of Research, supplement other activities of the Branch under way at the Forest Products Laboratory at Madison. The satisfactory kiln-drying of spruce in from one to three weeks rather than in an entire year required for air-seasoning, the selection of other species as satisfactory substitutes for spruce, and the determination of methods for kiln-drying them, tests to develop laminated construction and joints which will permit the use of a much larger proportion of the spruce cut, specifications for individual airplane parts for the same purpose, and finally, veneer tests with the idea of partial substitution for spruce, all bear directly or indirectly on the problem of speeding up spruce production and have the same general effect.

Some idea of the enormous quantities of wood going into war material for the United States Government, may be gained from a statement of John D. Ryan, Director of air craft production, before a crowd of several thousand soldiers, working in spruce lumber camps, at Vancouver, Washington. Mr. Ryan declared that the Government aircraft program is coming to fruition so rapidly that 50,000 Liberty Motors have been ordered for airplanes in the course of construction or already finished. This means that spruce for that many planes has already been used up, and it also means that much more of the same sort of wood will be necessary before the Government air craft program has been completed.

**SAVE PAPER BY ECONOMICAL
USE AND HELP WIN THE WAR. BY
REQUEST OF THE WAR INDUSTRIES
BOARD.**



Committee on Public Information

A MONARCH OF THE FOREST MAKING READY FOR CONVERSION INTO A POWER OF THE AIR

Mr. John D. Ryan, Director of Bureau of Aircraft Production, cutting a giant spruce in the Northwest, preparatory to felling it. Mr. Ryan and Colonel Disque on the saw. Photograph obtained from District Commander, Gray's Harbor and Willapa Bay District, Aberdeen, Washington.

PROGRESSIVE FORESTRY LEGISLATION IN LOUISIANA

BY R. D. FORBES

SUPERINTENDENT OF FORESTRY OF THE CONSERVATION DEPARTMENT OF LOUISIANA

THE recent session of the Louisiana Legislature passed two laws of far-reaching effect along forestry lines, providing an appropriation for the next two years. The appropriation consists of one-fifth of the Severance Tax on forest products, and this fund will amount to between \$15,000 and \$20,000 per year. The collection of the tax on all natural products severed from the soil has once more been made the business of the Conservation Department after a lapse of two years and there is every reason to expect that the larger figure will be realized.

The first of the forestry laws was one empowering the Commissioner of Conservation, as chairman of the Forestry Advisory Board, to promulgate and enforce

regulations requiring the use of spark arresters and proper ash-pans on all locomotives and stationary engines operated within two hundred feet of any wooded or cut-over land. The second law empowers the sale of timber on the Caldwell State Game Preserve on some 6,000 acres and to apply the proceeds of the sale to the purchase of new State Forests. This law serves a double purpose: First, it makes of the area a demonstration tract in forest practice; second, it gives much needed funds for the acquisition of State Forests. We are coming more and more to the opinion that in spite of the rapid growth of our southern species, the business of raising timber is a public rather than a private undertaking.

SHOOTING OF REED BIRDS FORBIDDEN BY LAW

THERE will be no reed or rice bird shooting in New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, North Carolina, South Carolina and Georgia this year. In the past shooting has been permitted from September 1st to November 30th, but the new Federal regulations have placed the reed or rice bird, which in reality is the bobolink, on the song bird list.

Rice planters, particularly in South Carolina, have stated that the reed bird or rice bird does millions of dollars of damage to the rice crop, and as far back as 1770 South Carolina placed a bounty upon this bird. It is only during its migratory period that the rice bird is so destructive to South Carolina's rice crops.

It is when the bobolink is through with reproducing its own kind and takes on a sober coat of mottled yellowish gray and ceases to sing, merely uttering the one note "chink-chick," that it becomes a different bird. Then

it starts on its wonderful journey, and this little bird, not much bigger than a sparrow, goes from 50 north to 20 south, covering 4,600 miles, and it does it twice every 12 months. When it arrives in Jamaica it is known as the "butter bird."

The rice bird gets its name from the fact that it is a lover of the wild rice that grows in the estuaries and swamps of the middle Atlantic States, and when it arrives in South Carolina the planted rice is "in the milk," and there the planters regard the bird as a pest.

Wherever there are rice plantations it is necessary to employ "minders," who with powder and shot kill the birds by the thousands or drive them away. The flight of these birds from Jamaica across the Caribbean Sea to South America is somewhat remarkable. For 400 miles there is not a reef or islet where the birds can stop. The birds fly that distance without a stop.—From *Daily Tribune*, Johnstown, August 27, 1918.

PROTECTION OF THE ROADSIDE TREES URGED

THE value of roads to the public depends not only upon their usefulness, but upon their beauty. This is the new view of good roads which was endorsed at the annual meeting of the North Carolina Good Roads Association at Wrightsville Beach.

On the first evening of the Convention State Forester Holmes gave an illustrated lecture on "Securing and Protecting Roadside Trees" in which he urged legislation by the next General Assembly empowering Boards of County Commissioners or other bodies in charge of the roads in the State "to plant, reserve, protect and care for roadside trees" in accordance with plans which it shall be the duty of the State Geological Board to pro-

vide when so requested. The State Forester argued that whereas, in many parts of North Carolina the chief money crop is the stream of tourists and summer visitors, nothing could increase the income from this source like beautiful as well as good roads. A law along the lines suggested, would, he contended, gradually result in a settled policy of maintaining the natural beauty of our roads and of adding to that beauty where this was possible.

The rough draft of a law which would provide for the making of plans and the growing of roadside trees by the State, and the protection of such trees from mutilation by linemen and advertisers, was read.

FIRE DANGER IN FEATHER GRASS

BY ROBERT T. MORRIS

FOR the purpose of beautifying some of the slopes on my country place at Stamford, Connecticut, I encouraged the growth of feather grass (*Andropogon*), cutting out underbrush and everything excepting trees which I wished to have grown upon these slopes. Late in April of the present year when the pines were just beginning to send out new herbaceous growth a fire was started by some one and it swept over more than one hundred acres of my property before it could be brought to a halt although we had Fire Engine Companies from Stamford, Mianus and Greenwich, Forest Fire Wardens and their crews of Stamford and Greenwich and a number of Boy Scouts.

Feather grass makes a particularly inflammable cover crop as the dried masses of leaves persist for years, constituting a thick carpet of material which burns almost like a prairie fire when it is very dry and with a little breeze as we had on this occasion.

The effects of the fire upon various trees may be worthy of note. On one slope I planted red pines far enough apart to give a park-like effect and these were now approximately twenty-five feet in height—magnificent specimens with lower branches sweeping close to the ground. The fire burst through these trees with a loud roar leaping high in the air above their tops and practically all of them were destroyed although a few are sending out herbaceous growth from the upper branches. On two other slopes a couple of thousand young red pines averaging less than ten feet in height were completely destroyed. Mugho pines were wholly burned up excepting a few which stood upon a gravelly bank not covered with feathergrass. The feature of note in connection with these Mugho pines which were spared by the fire is the fact that their tops were promptly invaded with the white pine weevil, although I have kept the weevil pretty well in check upon my property.

White pines of twenty feet in height suffered less than did the red pines although their lower branches were destroyed and they are now ragged and unsightly. The tops of the white pines which were spared are now being attacked ferociously by an aphid of a species which I have not determined, but which is very destructive sometimes to young white pines, unless they are thoroughly sprayed. For some reason these aphids have made a very vicious onslaught upon what remains of the fire damaged white pines.

Pitch pines burned nearly as fiercely as the red pines, although they were set widely apart for park effect. These pitch pines at the present date of writing, July twenty-third, have now sent out very many new shoots from adventitious buds. The pitch pine is the only one among my conifers excepting *Araucaria imbricata* which is able to start anew from adventitious buds in the trunk.

I had one compact stand of white spruces averaging rather less than twenty feet in height which had been set out for the purpose of making winter cover for deer, partridge and quail, also a smaller patch of Norway spruces closely set for game cover. All of these spruces went up with a roar, not only the foliage, but the limbs being consumed.

Austrian pines more than twenty-five feet in height set apart separately for decorative purposes lost their lower limbs, but the fire did not consume them clear to the tops as in the case of the red pines. Several hundred red junipers of various heights were entirely destroyed but here and there one escaped with a few ragged branches still living among the tops.

The feathergrass fire was nearly as destructive to deciduous trees as it was to the conifers. In this part of my property there were a number of grafted hickory trees most of them less than twenty feet in height, ranging from that down to more recently grafted stock. All of these were destroyed excepting one that happened to have had the mulch about its base recently removed.

A large number of young hybrid chestnut trees representing crosses I had made between various Asiatic and American *Castanaeae* were destroyed, but they are now sending out vigorous new shoots from the roots and will not be lost. The same is true of a hillside of chinquapins averaging perhaps twelve feet in height and which had been bearing very heavily for many years. A field filled with hybrids which I had made between various European, Asiatic and American hazels showed no living hazel until nearly a month after the fire when vigorous new shoots from stolons promised to replace those that were lost.

Various clumps of grey birches had all of the beautiful white bark blackened and burned beyond hope and the lower branches killed, although the tops of practically all of the grey birches remained alive. The same is practically true of the sweet birches although here and there a large sweet birch more than thirty feet in height was killed entirely. Alderleafed chestnuts with a trailing habit and with thickly massed branches were killed to the ground but they are now sending up vigorous new shoots.

I do not know of any cover crop which one might employ for beautifying his grounds which would be more destructive in case of fire than feathergrass. During the fire it was impossible to make effective fire lanes through the feathergrass because flying cinders started advance blazes many yards ahead of the main conflagration. Fortunately the long hose of the Mianus Fire Company with water pumped directly from the stream on my property sufficed to check the feathergrass fire and in the woods the forest fire fighters eventually made fire lanes to check the blaze.

NATIONAL FOREST TIMBER FOR SALE.

SEALED BIDS will be received by the District Forester, San Francisco, California, up to and including November 15, 1918, for all the merchantable dead timber standing or down and all the live timber marked or designated for cutting in all or any of the following compartments, Shasta National Forest, California.

COMPARTMENT 1.—This area consists of about 9,022 acres made up of whole or parts of the following Sections: T. 42 N., R. 3 W., M. D. M. Sections 2, 4, 6, 8, 10, 16, 18, 20 and 22; T. 42 N., R. 4 W., Section 12; T. 43 N., R. 1 W., Section 18; T. 43 N., R. 2 W., Section 24; T. 43 N., R. 3 W., Sections 26 and 34; T. 44 N., R. 3 W., Sections 30 and 32; T. 45 N., R. 1 W., Sections 24 and 26; T. 45 N., R. 1 E., Sections 19, 21, 27, 28, 31, 32, 33 and 34; T. 45 N., R. 3 W., Sections 28 and 32; containing an estimated amount of 76,548 M. ft. B. M. of yellow pine, 5,541 M. ft. B. M. of white fir and 423 M. ft. B. M. of incense cedar timber, more or less.

COMPARTMENT 2.—This area consists of about 1,120 acres made up of whole or parts of the following Sections: T. 42 N., R. 2 W., M. D. M., Section 4; T. 43 N., R. 2 W., Sections 26 and 34; containing an estimated amount of 11,552 M. ft. B. M. yellow pine, 6,650 M. ft. B. M. white fir, 1000 M. ft. B. M. red fir, 275 M. ft. B. M. Douglas fir, more or less. A cut of 75 per cent pine from this compartment will be guaranteed in the timber sale contract if desired by the purchaser.

COMPARTMENT 3.—This area consists of about 360 acres in Sections 6 and 8, T. 44 N., R. 1 W., M. D. M., containing an estimated amount of 1,611 M. ft. B. M. of yellow pine, more or less.

COMPARTMENT 4.—This area consists of about 240 acres in Section 1, T. 44 N., R. 1 W., M. D. M., containing an estimated amount of 200 M. ft. B. M. yellow pine, more or less.

No bid of less than \$2.75 per M. for yellow pine, 75c. per M. for Douglas fir and 50c. per M. for white fir, red fir and incense cedar will be considered. Rates to be readjusted at three year intervals if the contract period is longer than five years. Deposit with bid \$5,000 for Compartment 1; \$1,000 for Compartment 2; \$200 for Compartment 3, and \$100 for Compartment 4. The right to reject any and all bids is reserved. Before bids are submitted full information concerning the timber, the conditions of sale and submission of bids should be obtained from the

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SAVE PAPER, THE GOVERNMENT NEEDS IT

AN AMERICAN FORESTER ABROAD

UNDER date of June 7, from "Somewhere in France," Tom Luther, son of Thomas C. Luther, proprietor of the White Sulphur Spring Hotel, Saratoga Lake, writes interestingly of the work of the American Foresters in France, as follows:

"It has been my firm intention to write you ever since I have been over here, which represents some time now, as we already have our first service stripe, representing six months in the Zone of the Advance or the Zone of Supplies.

"We would all like to be up front to a man, especially now during the Boche offensive, which is doomed to failure. It's never a question of who will win—never! It's always 'How long will it take to lick them in real American style?' Many of the companies of my regiment are working within sound of the big guns and even under fire—tin hats and gas masks being in order. We are not so fortunate, since we are working in the maritime pine forests.

"Having had the preference over many thousands of combatant troops of coming over many months ahead of them we feel that our work is important, but it doesn't appeal to the red-blooded American, as do the trenches with possible military honors. Nevertheless, our mark, my own company's mark, now stretches from the piling and timbers used in the piers, where our ever-aiming transports land, clear up and out into 'No Man's Land,' where our entanglement stakes are being used for the barb-wire.

"Company C's 'trademark' can be found in the great warehouses at the ports of debarkation, at the rest camps, on the ties supporting our own railroads, on the duckboards in the trenches and on the props used in the dug-outs. To say nothing of the fuelwood we ship everywhere.

"There is hardly a nook or corner of France where the American soldier cannot be found today. Instead of 'Somewhere in France,' it should be 'Everywhere in France.'

"Our mills are running night and day and personally I have to be on the job seven days a week, as I'm looking after the shipping.

"I know you are interested in efficiency; therefore, I cannot help but take this opportunity to tell you a bit of French efficiency. It is their railroads. An American must laugh at them. The cars and engines are so small—and I cannot help but recall my ride from a base port here in a wee small box car with some thirty-five other men. I would not have believed that one small car could hold so many of the men if there had not been a written guarantee in good French on the outside to the effect that the car would hold thirty-six to forty men or eight horses. To return to the point, America could well take a

lesson from their 'petite' railroads in the wonderful way in which they have for four long years done everything and much more than could be expected. They have been 100 per cent efficient, or the British and French armies would have been lost long before this. Of America we all read last winter of the freight 'tie-ups' and all—they couldn't be over here. But my real point is I take off my hat to the French and British.

"We do salute you all back home for the unbelievable way in which you are all giving to the Red Cross, to the Y. M. C. A., and the Salvation Army. There seems to be no end to your capacity to give—it's that wonderful feeling that everyone everywhere back home is right behind you that will bring this war to a speedier end. If you all could but see one incident of what your giving means you would be glad through and through. Only the other day I saw several refugees from the last invaded districts who were eating food from the American canteens bought with your money—poor old men and feeble women with their teeth in many cases eaten out by German gas (there's something even poisonous about the name German now), and the little girls, their hair gone—gas! And one small boy totally blind for life—more gas!"

Mr. Luther has been in the Zone of Advance or the Zone of Supplies for six months and wears a first service stripe. —*New York Lumber Trade Journal.*

SAVE YOUR NUT SHELLS AND FRUIT PITS

EVERY American has the chance for direct war service that will save the lives of soldiers. Carbon is needed to make millions of gas masks for the American Army. Cocoanuts have furnished much of this material, but cocoanuts mean ships, and during the present shortage material for carbon must be found nearer home. The pits of apricots, peaches, prunes, olives, dates, cherries and plums and the shells of Brazil nuts, hickory nuts, walnuts and butternuts make carbon for gas masks that will outlast the most diabolical of the German gases.

Here is work for all, every home, church and school. Urge the boys and girls to scour the woods for nuts and incite your patriotic organizations to rivalry in making collections. See that the work is started in your neighborhood. Place collection boxes in schools, churches, banks and stores, and above all in your own home so your boys and girls can see the pile grow. It takes two hundred peach stones or seven pounds of nut shells to furnish carbon for a gas mask and save the life of an American soldier. How many masks can your neighborhood furnish?

Dry the pits and shells before turning them into the nearest Red Cross chapter. This organization is in charge of collecting all material.

CANADIAN DEPARTMENT

BY ELLWOOD WILSON

PRESIDENT CANADIAN SOCIETY OF FOREST ENGINEERS

ON the twentieth of September there was held at the Windsor Hotel in Montreal, the first regular meeting of the Woodlands Section of the Canadian Pulp and Paper Association, which was organized last February. There is much significance in the formation of this section, as it brings together the practical woodsmen and responsible heads of woodlands operations who furnish the raw material for the immensely important pulp and paper industries. In the past these men have been concerned only with the delivery to the mills, at as low a cost as possible, of the logs necessary for the mills. They have never given the future a thought, or if they have they have said "What do we care what happens in 25 or 30 years, let our successors attend to that." They have not been to blame in this attitude as their work has been judged solely on a basis of cheap production. Get us cheap logs, has been the order. Now that the price of labor and supplies has advanced so much and the timber is rapidly growing more inaccessible and of poorer quality, they are beginning to look ahead a few years and are taking an interest in the future. This naturally brings them into touch with the man who understands these matters, the forester, and they are asking him what can be done to insure a supply of logs for the future. This is certainly a good thing and it is fine to see how these men are tackling the problem. Great strides may be expected in Canada in the near future due to the co-operation of all those interested in the exploitation and conservation of the forests. There is no sentiment about it, but only the desire to perpetuate and use properly, what is one of Canada's most important natural resources.

Dr. Swaine, the Dominion Entomologist, reports that an insect which has hitherto only attacked the cultivated species of white birch, has now attacked the birches in the forest and will in all probability exterminate them if some means is not found of combating its ravages. He also reports finding the worm which causes the balsams to turn red and die. The proper scientific study of our forests is one of the most important pieces of work which has been undertaken and will yield highly important economic results.

The preliminary report of Dr. Howe on the conditions of growth and reproduction of conifers in the Province of New Brun-

wick, shows that they are very similar to those ascertained last year in Quebec.

The new Forestry Service of New Brunswick is progressing well and reflects credit on Col. Logie, who for years has been working to establish a rational system of forest management for the Provincial lands. New Brunswick is now in some respects ahead of all the other Provinces in the Dominion.

The St. Maurice Forest Protective Association reports for the season to date show 90 fires, which burnt 340 acres of merchantable timber, 425 acres young growth, 1,340 acres of cut-over land and 2,230 acres of old burn. The total cost of extinguishing these fires will amount to about \$900, a further reduction over last season, which was the lowest on record. Only one arrest was made for setting fires and the man was fined. Much use has been made of motor cycles with side cars which can go where automobiles cannot and use less gasoline. Their cost of upkeep is also lower.

On August 20th, after a meeting of the members of the Newsprint Service Bureau in Montreal, some of the members, Messrs. G. M. Knowlton, E. B. Sterling, Prof. C. T. Hamill, R. O. Sweezy, J. S. Bates, R. S. Kellogg, A. L. Dawe, Beck and Ellwood Wilson, made an automobile trip to the Quebec Government Nursery at Berthierville. Here they were met by the Chief Forester, G. C. Piche, who welcomed them on behalf of the Minister of Lands and Forests and showed them the very excellent nursery. Here trees are raised for sale to those reforesting on a large scale and also for farmer's woodlots and ornamental planting.

The writer has just returned from a most interesting and successful meeting of the Society for the Protection of the New Hampshire Forests at Dover, New Hampshire. The Secretary, Mr. Philip W. Ayres, deserves great credit for the interesting meetings which he organizes. Col. Graves gave some very interesting accounts of the work in France and called attention to the necessity for better forest utilization and management on this continent and expressed the opinion that when our men return from France where they have had an opportunity to see the value of forests in war and the wonderful way in which France has built up her forest resources and conserves them even under the stress of war conditions, there will be



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MAKING PAPER FROM DEAD LEAVES

BOTH in Europe and in America there has been a sharp rise in the cost of paper, and this has been peculiarly critical in France, says the *Scientific American*. Even before the war France imported half a million tons of paper pulp yearly from Austria and Germany, or about half of the whole amount used. The cutting off of the supplies from the Central Powers, and the severe deforestation due to the war have made paper pulp so scarce and so expensive that many periodicals have been forced to suspend publication. It is now proposed to make use of fallen leaves to supply this lack of raw material. On March 27, M. Edmond Perrier of the French Academy of Sciences presented before that body an account of the successful experiments along this line of Madam Karen Bramson.

The process is very simple, rapid and inexpensive; the leaves are first crushed, which reduces the blades to powder, which is carefully separated from the ribs and veins. It is the latter which form the raw material for paper pulp. They are subjected to a somewhat rapid lixiviation and are then washed and bleached, whereafter the pulp is ready for use. The leaf powder which remains is useful in two ways. It has a high food value, since it contains the digestible and nutritious parts of the leaf after the removal of the cellulose. As a food for cattle its nutritious value is almost

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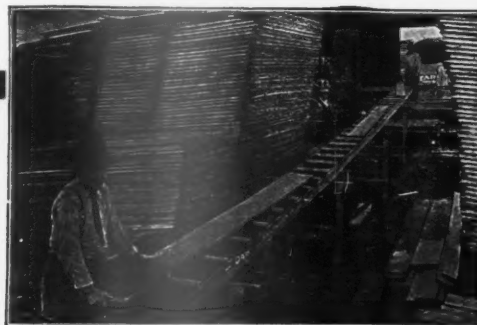
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equal to that of hay, especially when mixed with molasses and compressed into cakes. The leaf powder may also be used as a combustible. For this purpose it may be compressed into briquettes, either with or without being previously mixed with charcoal powder.

Madam Bramson recommends however, the practice of dry distillation, by means of which she obtained a comparatively pure porous charcoal rich in calories (6,500 to 7,000 cal.), and easy to agglomerate. The process also yielded an excellent tar, having all the qualities of the so-called Norwegian tar, having tar, as well as acetone, and pyro-ligneous acid. One thousand kilograms of the leaves yielded 250 kilograms of pure carbon (or 500 kilograms of edible powder) 30 kilograms of tar, one kilogram of pyro-ligneous acid and 600 grams of acetone. According to a recent estimate by the Director of the School of Grignon, France produces annually between thirty and forty million tons of dead leaves. It is calculated that only four million tons would be required to furnish the paper pulp required in an average year. The economic importance of the question is evident from the fact that in 1913 France paid \$20,000,000 for the paper pulp imported from the Central Powers.

It is believed that the collection of the leaves can be done by women, children and war cripples. The leaves can be transported to the paper mills in compressed blocks, but it would be better to build factories on the borders of great forests so as to eliminate the cost of transportation.

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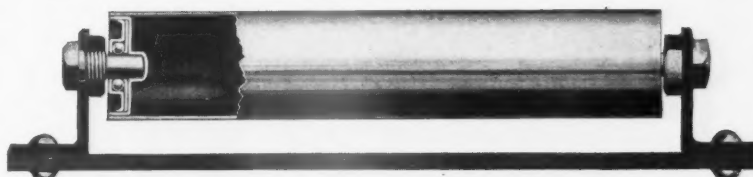
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*This, of course, is not a complete list, but we shall be glad to add to it any books on forestry or related subjects upon request.—EDITOR.

ANCIENT PINE DOORS

ONE of the most remarkable instances of the permanency of wood construction has been found by Mr. John H. Kirby, President of the National Lumber Manufacturers Association, in the romantic and picturesque old mission church of San Xavier Del Bac, nine miles from Tucson. The huge wooden doors which have swung open to countless thousands are today performing the service they performed when the famous old mission was built, more than two hundred years ago.

Founded in 1692, the mission, which many claim to be even more beautiful than the missions of California, was conducted continuously by resident Jesuits until 1751. Then for a few years it was administered as a visita from Tubac, and in 1767, fol-

lowing the Spanish expulsion of the Jesuits, was turned over to the Franciscans. This order continued the work of the mission until 1827, when Mexico expelled all the religious orders.

For a number of years the mission was practically abandoned. After the Gadsden purchase in 1854, it came into the diocese of Santa Fe, but not until 1866 were the missionaries from the New Mexico city able to reach the Santa Cruz Valley and take up the work there.

In 1900 the Right Rev. Henry Granjon was appointed bishop of Tucson. He secured title from the Government for the land on which the mission stands, and restored the building, which had fallen into ruin to a certain extent. Since that time the work of the mission, including a school for the

Indians on the reservation which entirely surrounds it, has continued regularly.

The pine doors which have done service for so long a period, were, according to tradition, a part of the original building completed in 1699. When this original structure was demolished in 1793, the doors were saved from ruins and made a part of the present building which is built of brick and stone and is of a Moorish-Byzantine type of architecture.

The pine doors are today in virtually as good condition as when they were first hewn from the trunks of the tree, a striking example of the durability and serviceability of wood as construction material, the merit of which was recognized even in early times as it is today when the lumber industry has grown to such enormous proportion in the United States.

THE PROUD RECORD OF ONE DISTRICT IN SHIPBUILDING

FORTY-FIVE completed wooden steamers worth \$150,000,000 will have been delivered to the Emergency Fleet Corporation by the end of 1918 from Portland and the Columbia river district, according to a recent announcement at Portland. In addition, shipbuilders of the district will have launched 105 additional hulls worth \$50,000,000.

This means a total contribution by this section of the Pacific Coast of 540,000 tons to the United States Merchant Marine Fleet. The wooden shipyards of the district have on hand contracts calling for construction of thirteen steamers of 3,500 to 4,600 tons each. New contracts are being awarded at frequent intervals.

It costs \$200,000 to equip a wooden hull with machinery and prepare it for ocean service.

WOOD TO ROOF INDEPENDENCE HALL

WOOD in the form of shingles has been decided upon as the best possible protection for the roof of old Independence hall by the Philadelphia Chapter, American Institute of Architects. These are to be laid on shingle lath so they will be visible from the loft, and nailed with copper nails.

The Philadelphia architect body made the decision after a long and exhaustive study of the subject during which all sorts of roofing material was proposed. The work, which is to be finished in four weeks, has already been let for \$5,936. The specifications call for split, all heart shingles, seven by twenty-four inches, with butts not less than a half inch.

When the work has been completed the historic building will be about as fully restored to its original condition as possible. Part of the work to be done on the contract is to move the skylights from the north side and place them on the south side as they were originally.

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WOOD FOR FUEL IN IOWA

CROSS-CUT saws, buck saws and axes are making sounds like victory for the United States in its war against Germany throughout Iowa this week. They are being wielded by determined men who are putting wood into shape to be used as fuel this winter. Their employment is a part of a gigantic plan inaugurated by Charles Webster, Federal Fuel Administrator for the state, to conserve coal during the coming winter months.

The equivalent of one million tons of coal, or rather to be more explicit three million cords of fuel wood, is the mark set by the state administration to be reached by November 1, 1918. Iowans generally are co-operating and it is expected there will be no difficulty on that score. Nearly 60,000 pledges have been obtained in which the signers pledge themselves to have cut for own use certain quantities of fuel wood by that date. In many of the larger cities of the state municipal wood yards have been established and are doing good work.

CHINESE CHESTNUTS THRIVE

The Chinese downy chestnut trees (*Castanea mollissima*) which were distributed in 1907 have not succumbed to the bark disease and some of them have borne a few fruits. It is clear that they have a high degree of resistance to disease, and although they can not be expected to take the place of the much larger species of chestnut native to America, in so far as timber production is concerned, they can be at least relied upon to furnish good nuts for the trade.

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BLACK WALNUT NEEDED

THE bureau of aircraft production of the war department has announced that there is an urgent necessity for the immediate delivery of all the black walnut wood it is possible to obtain. This wood is desired for use in the making of airplane propeller blades and gun stocks.

The bureau says that black walnut trees are scattered throughout different parts of the United States, growing in small groups, and that in taking the necessary steps to see that these trees are made available to the Government, the owners of them have an opportunity to demonstrate their patriotism in a most practical and effective way.

A part only of the lumber from each tree can be used, and the Government, therefore, cannot buy the trees direct from the owner. When the trees are sold to a saw mill which has a Government contract for lumber for propeller blades or gun stocks, this wood will be sorted out and put to the uses to which it is adapted.

No trees which produce logs less than 12 inches in diameter can be cut, as they do not yield material suitable for Government use.

It is desired by the bureau that anyone having information on the subject of black walnut trees get into touch with saw mill concerns in their communities, which may have Government contracts, or communicate with the Ordnance Department, Production Division, Small Arms Section, Washington, D. C.

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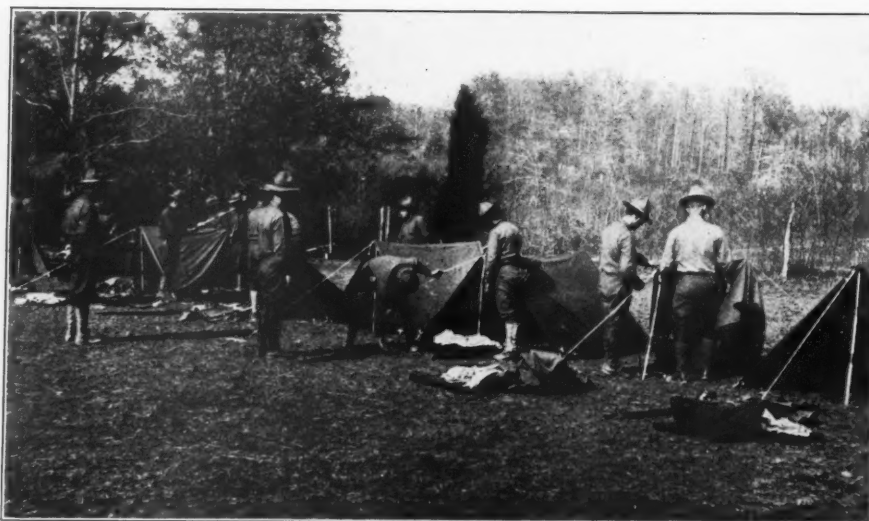
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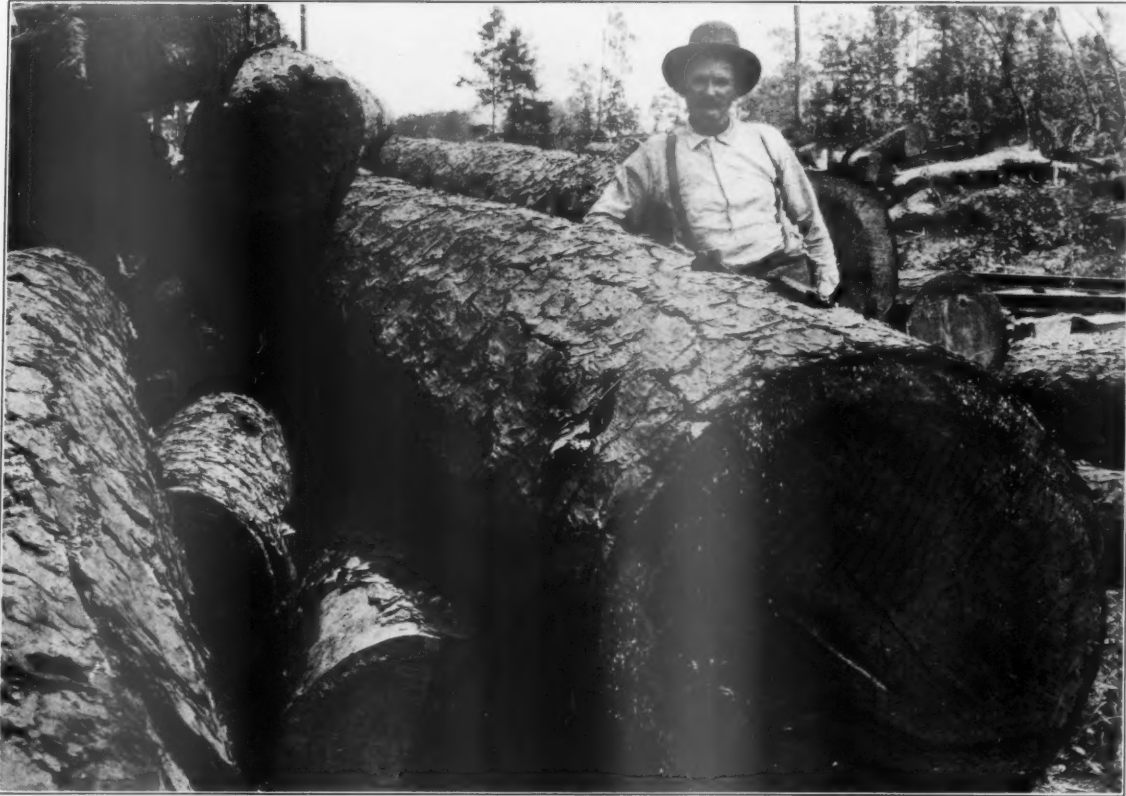
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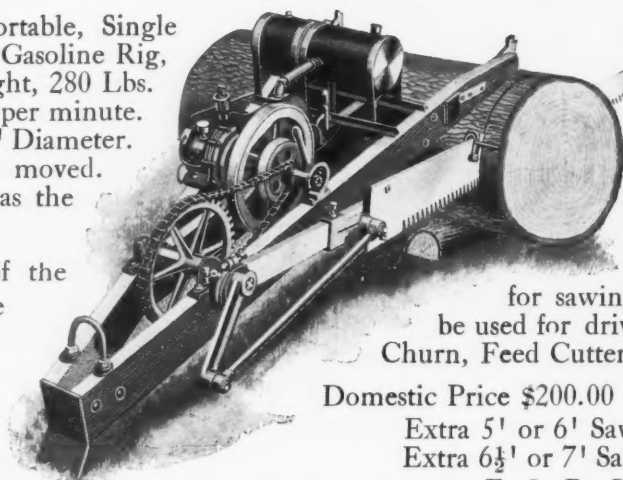
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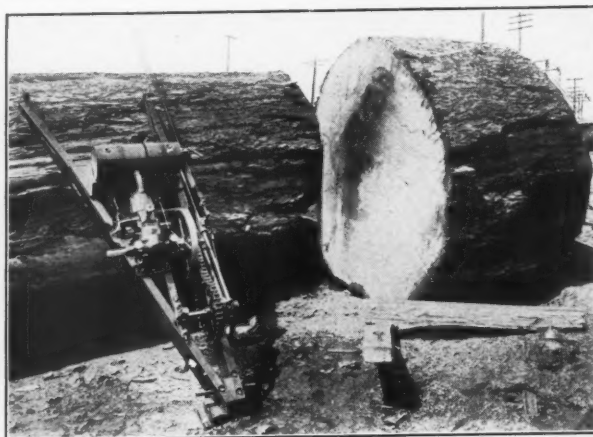
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Declaration of Principles and Policy of The American Forestry Association

IT IS A VOLUNTARY organization for the inculcation and spread of a forest policy on a scale adequate for our economic needs, and any person is eligible for membership.

IT IS INDEPENDENT, has no official connection with any Federal or State department or policy, and is devoted to a public service conducive to national prosperity.

IT ASSERTS THAT forestry means the propagation and care of forests for the production of timber as a crop; protection of watersheds; utilization of non-agricultural soil; use of forests for public recreation.

IT DECLARES THAT FORESTRY is of immense importance to the people; that the census of 1913 shows our forests annually supply over one and a quarter billion dollars' worth of products; employ 735,000 people; pay \$367,000,000 in wages; cover 550,000,000 acres unsuited for agriculture; regulate the distribution of water; prevent erosion of lands; and are essential to the beauty of the country and the health of the nation.

IT RECOGNIZES THAT forestry is an industry limited by economic conditions; that private owners should be aided and encouraged by investigations, demonstrations, and educational work, since they cannot be expected to practice forestry at a financial loss; that Federal and State governments should undertake scientific forestry upon National and State forest reserves for the benefit of the public.

IT WILL DEVOTE its influence and educational facilities to the development of public thought and knowledge along these practical lines.

It Will Support These Policies

National and State Forests under Federal and State Ownership, administration and management respectively; adequate appropriations for their care and management; Federal co-operation with the States, especially in forest fire protection.

State Activity by acquirement of forest lands; organization for fire protection; encouragement of forest planting by communal and private owners, non-political departmentally independent forest organization, with liberal appropriations for these purposes.

Forest Fire Protection by Federal, State and fire protective agencies, and its encouragement and extension, individually and by co-operation; without adequate fire protection all other measures for forest crop production will fail.

Forest Planting by Federal and State governments and long-lived corporations and acquirement of waste lands for this purpose; and also planting by private owners, where profitable, and encouragement of natural regeneration.

Forest Taxation Reforms removing unjust burdens from owners of growing timber.

Closer Utilization in logging and manufacturing without loss to owners; aid the lumberman in achieving this.

Cutting of Mature Timber where and as the domestic market demands it, except on areas maintained for park or scenic purposes, and compensation of forest owners for loss suffered through protection of watersheds, or on behalf of any public interest.

Equal Protection to the lumber industry and to public interests in legislation affecting private timberland operations, recognizing that lumbering is as legitimate and necessary as the forests themselves.

Classification by experts of lands best suited for farming and those best suited for forestry; and liberal national and State appropriations for this work.

KEEP THE HUT FIRES BURNING!



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